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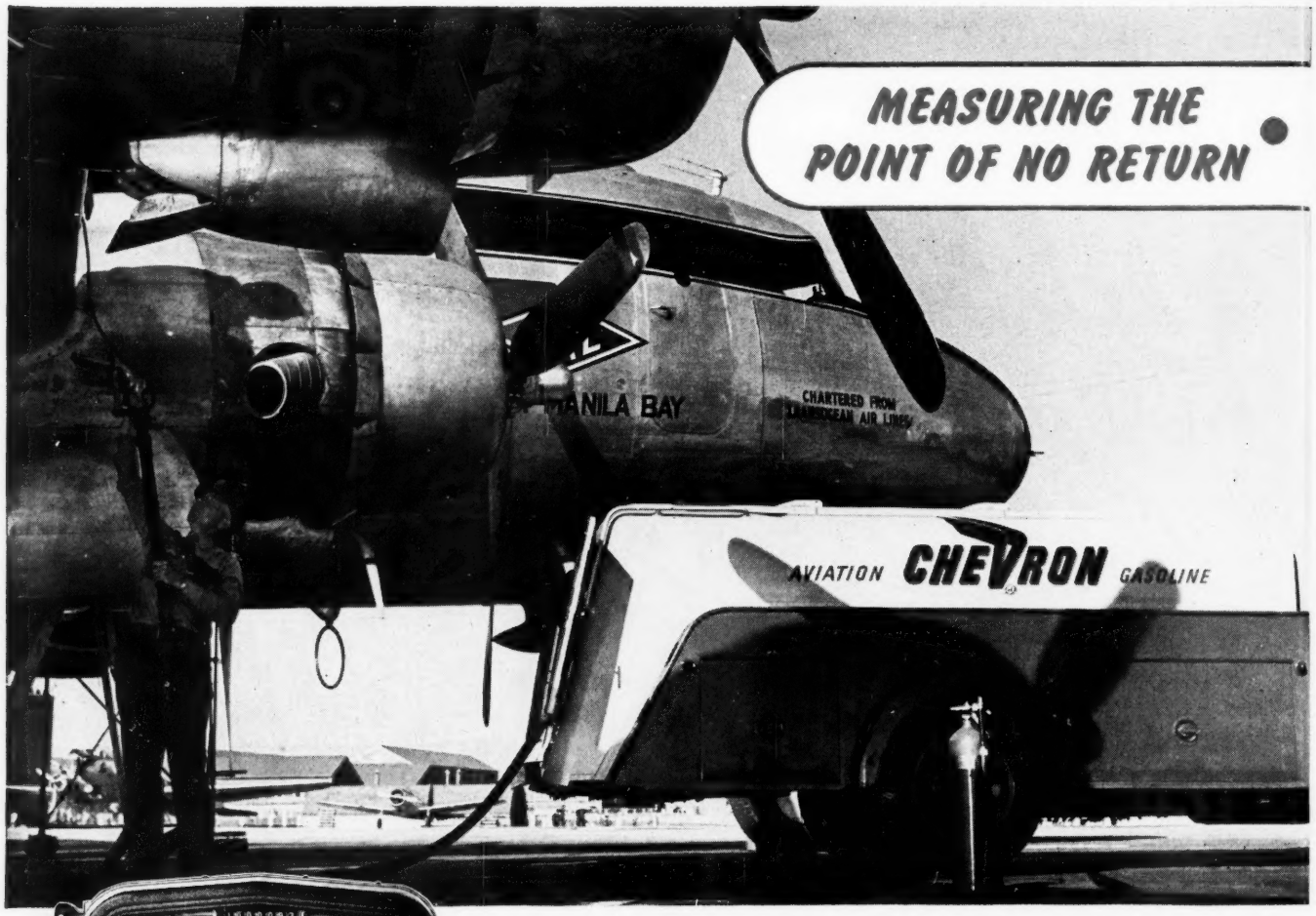
# fueloil & oil heat

## NATIONAL OIL HEAT EXPOSITION

OHI
OIL-HEAT INSTITUTE OF AMERICA



*BRODIE Quantrol Meter*
*Equipped with Brodimatic Counter*

## with BRODIE Quantrol Meters equipped with Brodimatic Counters

How far a plane can fly, beyond which it is shorter to continue on to destination rather than turn back to its base, is determined with utmost care and precision while the ship is being fueled, loaded and trimmed for flight. Exact fuel loads must be accurately computed and balanced against pay load. Gallonage must be metered "out," as well as "in," when passenger or cargo weight is altered. Also, unexpected changes in weather may call for last minute adjustments in fuel load.

In this and other exacting operations, Brodie Meters equipped with Brodimatic Quantrols meet every requirement of speed, safety and dependable accuracy. Fully automatic gallonage control helps prevent overfilling, spillage and resultant fire hazards. With a Brodie Quantrol — once you set it — you simply forget it — for it shuts off automatically, when the exact preset gallonage has passed through the meter. Equip today with Brodie Metering equipment, wire or write for full details.

# BRODIE METERS

PETROLEUM METERING EXCLUSIVELY

SINCE 1927

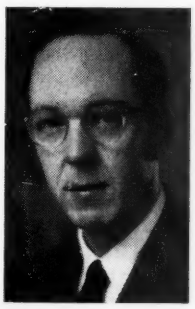
**RALPH N. BRODIE CO., INC.**
*61ST AND LOWELL STREETS*
*OAKLAND 8, CALIFORNIA*

DIVISION OFFICES: *Chrysler Bldg., New York City*
*59 E. Van Buren, Chicago 5 · 302 South Pearl St.*
*Dallas 1, Texas · 221-9th Ave. North, Seattle 9, Wash.*
*2101 S. San Pedro, Los Angeles 11, California*

E. Eng. Wehs.

# Names in the News

*Harold J. Hannigan* has been appointed Mid-West Manager for FUELOIL & OIL HEAT.

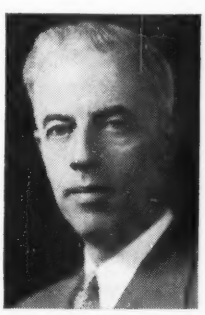


He will operate from his home at 4126 W. 24th Place, Chicago 23, and from the publication's downtown office at 549 W. Washington Blvd., (Central 6-0545).

Mr. Hannigan, an alumnus of DePaul and Illinois Universities, where he majored in advertising and market research, formerly was associated with Lyons Associates, publishers' representatives and also has worked as a free lance public relations director in the Chicago area. During the last war Mr. Hannigan was attached to Naval Air Transport Squadron 11 in the Pacific. He is an active member of the American Legion and has served as Commander of his Post.

*Alexis Doster,* well known in the oilheating industry as secretary for many years of Torrington Mfg. Co., Torrington, Conn., and later as its representative in New England, severed all business connections and sailed for the Virgin Islands early in April, for at least a year's vacation. In a phone call to FUELOIL & OIL HEAT shortly before he left, he said he expected to spend at least part of his stay there in St. Thomas, popular Caribbean resort center.

*Robert E. Daly* has been named northwestern district sales representative, National Radiator Co., Johnstown, Pa. Formerly associated with American Radiator as branch manager and in engineering capacities, Mr. Daly during his thirty years experience in the heating business



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fueloil & oil heat

VOL. 8, NO. 1

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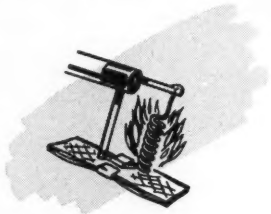
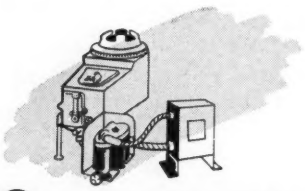
# If you like SELLING you'll like selling H. C. LITTLE!

**No Other Vaporizing Oil Heating Equipment Offers All Nine of These Sales Features!**

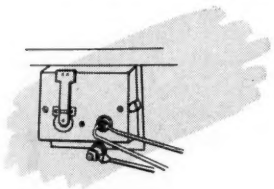


**1** **H. C. LITTLE FURNACES AUTOMATICALLY LIGHT THEMSELVES**
Automatic Operation With Exclusive H. C. Little Electric Ignition—No Pilot Light.

**2** **EFFICIENT COMBUSTION WITH CATALYTIC OIL**
Exclusive H. C. Little "Catalytic Heat Control" Now Standard Equipment and Available for Modernization of Existing H. C. Little Installations.



**3** **NON-MECHANICAL OIL BURNER**
Exclusive, Patented, Elongated Design—no motors, no blowers, no moving parts to wear out or need service.



**4** **QUICK STARTING WITHOUT BLOWER**
Exclusive H. C. Little Quick Starting Control—Thermally operated. Automatically admits extra air for starting.

**5.** EASY ACCESS BURNER DOOR for inspection or cleaning.

**6.** AUTOMATIC OIL CONTROL and Safety Trip with thermally controlled double shut-off.

**7.** PATENTED THERMO LIMIT Safety Control.

**8.** LOW VOLTAGE IGNITION TRANSFORMER does NOT cause radio interference and is very ECONOMICAL.

**9.** WRITTEN FACTORY GUARANTEE of one year on entire unit and up to 10 years pro-rata on parts.

H. C. Little Burner Company

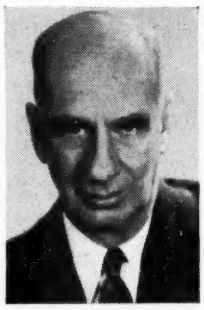
Write Dept. 5
SAN RAFAEL, CALIFORNIA

**FACTORY REPRESENTATIVES IN 18 PRINCIPAL CITIES**

*In the Battle for Sales— H. C. Little is the Winner!*


also has served as a member of the I-B-R technical committee and as a member of the committee on simplified practice recommendations for radiators. An office has been established at 3355 East 182d St., Seattle.

*M. V. Stagg,* formerly assistant to the vice president in charge of Williams Oil-O-Matic Div., Eureka Williams Corp., Bloomington, Ill., has advanced to assistant to the president in the Division. He joined Oil-O-Matic in 1934 as manager of the company's Ice-O-Matic division and when the manufacture of refrigeration equipment was discontinued during the war years, Mr. Stagg assumed expanded duties tied in with the plant's overall operations.



*Francis Taylor Albert,* Dickeyville 7, Md., has been appointed sales representative for Maryland and the Del-Mar-Va peninsula by Dickson Fuel Corp., Philadelphia, Pa., handling coal and fueloil. Mr. Albert, for many years connected with a local fuel company, during the War was with the Plumbing & Heating Branch, Wholesale Retail Trade Division, WPB.

*Sterner A. Davisson* has joined the sales staff of Perfection Stove Company, Cleveland 4, Ohio, to cover the Central Illinois territory. He will make his home in Decatur, Ill.

*L. T. Carson* has become manager of the water heater division, United States Radiator Corp., Detroit, Mich. Mr. Carson formerly was midwest sales manager at Des Moines, Ia., for Jud Whitehead Co., water heater manufacturers and previously had acted as manufacturers representative for the same company. Other experience in merchandising came from his position as manager of the major appliance divisions of T. Eaton Co. department stores in Canada.

# Did your customer write *this* letter?

A few weeks ago we received this letter from a homeowner who had seen an advertisement about a small motor which, under laboratory conditions, had operated about nine years before needing repairs.

The letter is well worth your reading. It suggests how you can assure *complete customer satisfaction.*

The Ohio Electric Mfg. Co.
Cleveland, Ohio

Gentlemen:

Your attention is invited to the enclosed advertisement. Now here is another one -- after nineteen (19) years of use in an automatic oil burner.

I have an Ohio 1/12 HP motor, Serial No. T-439, Cy. 60, Volt. 110, Type A-1, T-20 AC, that was installed therein, with the only service it ever had was a shot of three & one oil once in a while.

It would still be in use today, except for unforeseen circumstances. The hot water boiler cracked and flooded the basement and I had to install an emergency gas heater.

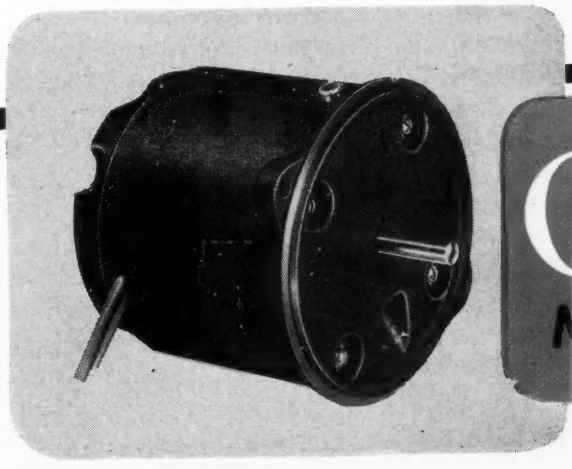
The motor and assembly was dismantled and I expect to install it in another house. An electrician examined the motor and informed me that no repairs of any kind are required and that it is good for another 19 years.

So it is apparent that when better motors are built the Ohio Electric Mfg. Co. will make them. I don't know how many times the motor has turned over but it's ready to start over again without any first aid. It seems it was built to last.

Very truly yours,

Irving E. Tier

1531 Spring Place N. W.
Washington 10, D. C.



Specify Ohio Motors on all new burners you install today.

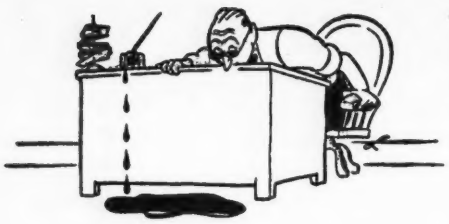
**Ohio MOTORS**

*the motor customers write about—enthusiastically*

**THE OHIO ELECTRIC MFG. CO.**

**5918 Maurice Avenue • Cleveland 4, Ohio**

fuel oil & oil heat



# Editorial Leaks

About half the gas meters in the country now are "unrestricted," meaning that those homeowners may use gas for househeating if they choose. It is estimated that the other half of gas users will have their restrictions lifted within two years as pipe becomes available and is laid to extend lines and increase capacity.

Much of this expansion in the gas industry will bring natural gas to areas that never before have had it. Though most of this natural gas will be used to enrich manufactured gas, the public does not understand such technicalities. They will be told only that they now are being served with natural gas.

There is magic in the words, "Natural Gas." People have been taught to believe that they are sharing nature's bounty when they use natural gas; that it is hot, clean, trouble-free and is delivered practically without cost. This stems from the wide stories from the Southwest where gas is so plentiful it is thrown away. The myth persists.

Dealers in those territories where natural gas has been introduced have not sold many oilburners during the honeymoon period. Utilities frequently move in a crew of salesmen who cover the town house by house, telling the story of cheap, carefree heating. With the natural gas myth firmly in mind it is not too hard to sell.

Past experience shows that areas introduced to natural gas—either straight or mixed—are poor oilheating territories for about two years. Homeowners rush to get their share of the earth's largess. They do not remember that it costs money to transport it over long distances, and three or four concerns have handled it at a profit before it reaches the heating plant. Generally, after about two seasons of gas bills, the area is again receptive to oil heat.

The best defense against the inroads of gas is a strong, merchandising offense. Thoroughly satisfied oil heat customers are less susceptible to the promises of the natural gas salesman than unsold prospects. There still is time in many areas, but it is getting short.

◈

A new problem has arisen since most oilburner sales manuals were written. None we ever have seen tells how to compete with the television set for the prospect's attention. One young salesman recently worked it out to his own satisfaction.

After several calls to sell the customer a unit to replace his old heating plant, the salesman still was unable to close the deal. There was no serious objection, but a dogged refusal to sign. On the night in question the salesman had been over the sales points. They had been in the basement, and again they had picked the spot for the new unit, but the prospect would not close.

As they reached the living room the prospect switched on his favorite television comedian, and the evening looked liked a total loss until the salesman got an idea.

"Mr. Jones," said the salesman, "I don't want to keep you from your favorite show. Suppose I sit down over here and fill in this contract while you watch your program. The sooner I get out of here the more time you'll have to enjoy it."

The prospect signed.

◈

Newspapers and the radio recently have given prominent attention to the decrease in sales, increase in unemployment and the rise in number of business failures. There is a hushed implication in the reports that the country is headed straight for the dogs, and nothing much can be done about it. A few timid souls have fired their sales departments—seemingly the first step in economizing—and are preparing to hide from the business they claim to need. If the business community were to plan a serious depression those tactics could be counted on to accomplish it.

There is no doubt that "shopping" businesses are not enjoying the boom they enjoyed in the last two years, but there is no reason to believe that a recession from abnormal highs flags the start of disaster. Specialty businesses, oilheating among them, are not supposed to depend on shoppers for their sales. Specialty business, by definition, is sought and found.

If oilheating goes into a slump this year the industry will have no alibis. By dealers' own estimates half the business last year originated with the customers, and dealers dug out the other half for themselves. There is not the slightest chance that the shopping demand this year will represent half of a satisfactory sales volume. There is no reason to expect it. Statistics on shopping sales show that people already have about completed filling their known needs.

Another statistic should be kept in mind while reading the indications of slowing business. In the boom year of 1929 there was a dollar of savings for each dollar of debt owed in the country. Today there are three dollars of savings for each dollar of debt. People have the money to buy, but they are trying to make up their minds what they want most. There can be no slump in this industry if we tell people why they should buy.

◈

Oilheating dealers may be agreed on the need to get more business, but there is no agreement on the methods by which it can be gotten. Three well-known dealers were discussing the problem of protection prospects. New salesmen too often found it hard to file a prospect not already on the list.

"I give the men protection on their leads for 90 days," explained the first dealer. "If they can't close in that time somebody else deserves a shot at the business."

"I limit them to 50 prospects," the second dealer cut in. "After that they have to sell one to add one. That keeps the boys trying to close."

"And I wouldn't work for either one of you," the third sneered. "You guys with open territories always will be trying to settle arguments while keeping the salesmen fighting each other. With a closed territory a man always knows when he can file a prospect, and whose it is. You always work with him against the field, not against other salesmen."

You pays your money and takes your choice.

# NEW!

## COMBINED IN 1 UNIT — VENTALARM® SIGNAL and a TANK GAUGE!

GAUGE CAGE
Clear, oil-proof, shatter-proof plastic. Tested 25 lb. pressure.
LEVEL TELL
Visible from both sides and end of tank.
VENT PIPE OPENING
Vent pipe screws in here.
GAUGE READING
NO LEAK
threaded fit.
VENTALARM GAUGE ®
MALE THREAD
Screws into tank vent opening as usual.
SIGNAL WHISTLE STEM
Projects into tank in usual manner.
GAUGE ARM HOLDER
Strong, rugged cold rolled steel rod.
For 275 gal. cellar tanks. State depth.
SIZES
2" x 1¼"
1½" x 1¼"
LIST PRICE COMPLETE
$2.70
GAUGE ARM
Strong steel rod stock.
NOJAM PIVOT POINTS
Foolproof copper pinned joints.
FLEXO-JOINT
Flexible, coil spring insert. Is self-aligning. Bends, then straightens itself out. Allows easy installation regardless of amount of oil in tank.
ALWAYS FL
Coated cork.

### "ALL-IN-ONE" VENTALARM GAUGE

A VENTALARM signal at the usual price. A gauge for only 75 cents more! Or — put it another way. If you are now paying $1.75 for your gauges, you get a VENTALARM signal for only 95 cents more!

### SAVE $2.00 PER BURNER INSTALLATION

Instead of buying two items, you buy only one. And you save $1.00 on that. Furthermore the VENTALARM case acts as a reducer from 2" or 1½" tank opening to 1¼" vent pipe. So you save an additional 25¢ by eliminating need for a reducing bushing. You save in labor because you install one item instead of three. That helps inventory too! Then again, you need one less tank flange opening. So you can save 30¢ to 40¢ on your tank order specifications. A real money saver!

### INSTALLATION

Just screw it into the vent opening of the tank. If there is oil in the tank the cork arm bends at the FLEXO-JOINT in passing the sides of the tank. Straightens out correctly when in permanent position. Could anything be easier? The vent pipe screws into top of VENTALARM GAUGE. No leaks because all fittings are threaded including the GAUGE CAGE.

### SIZES

Available for 275 Basement Tanks with depths of 22", 24", 26", 27", 42", 44" and 47". Specify tank depth and tank opening when ordering. For 1½" or 2" tank openings. List Price Complete $2.70.

### AT YOUR SUPPLY HOUSE

Your jobber will soon have VENTALARM GAUGE in stock along with the other VENTALARM signals he now carries. Get your order in early. It looks like a hot number!

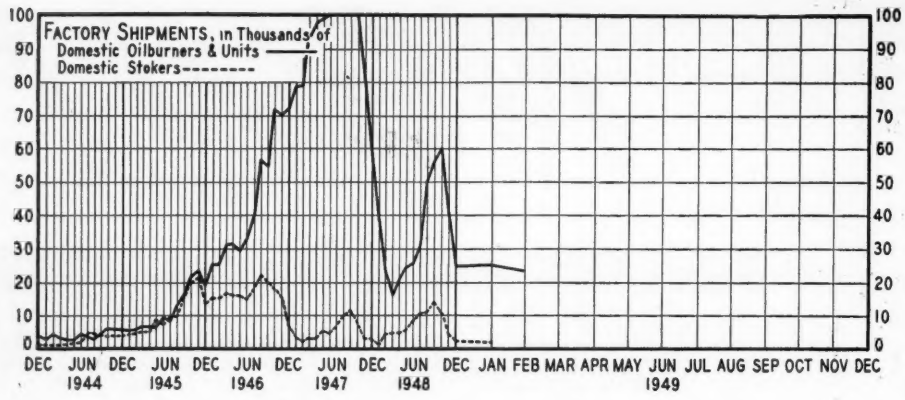
## SEE IT AT SHOW—BOOTH 331

Manufactured under one or more of the following U. S. Patents RE 22391; RE 21930; 2,143,476; 2,143,492; 2,143,706; 2,212,620; 2,227,322; 2,227,323; 2,249,180; 2,257,656; 2,276,798; 2,328,686; 2,330,983; 2,429,280. Additional patents pending. Pat. Canada 1938. Foreign patents issued and pending.

## SCULLY SIGNAL COMPANY

76 First St. Cambridge 41 Mass.

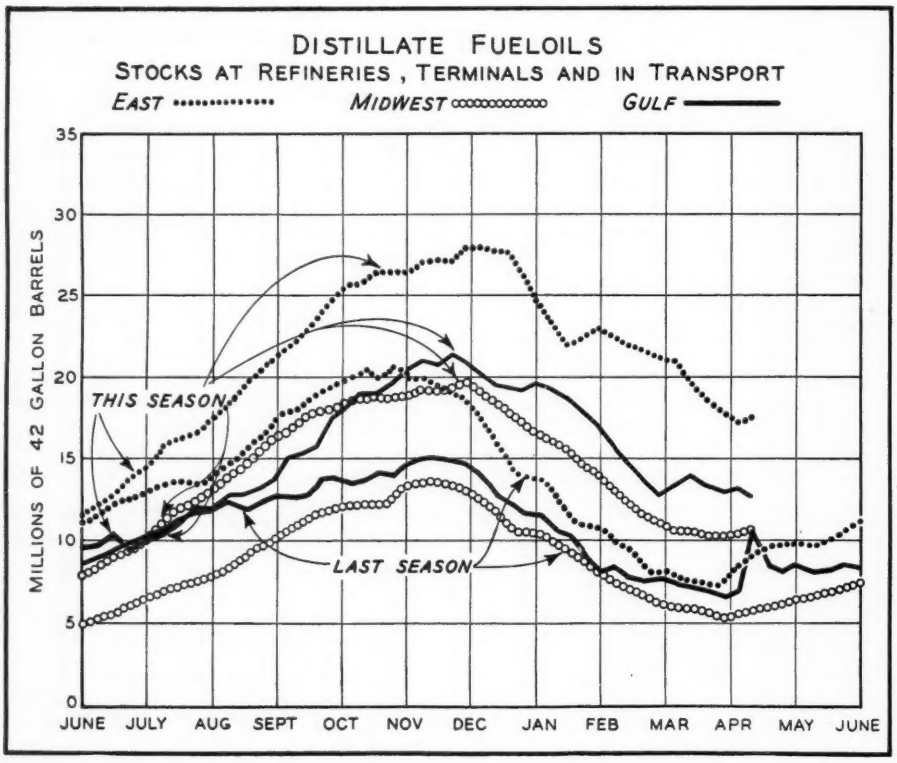
Canadian Licensee EMPIRE BRASS MFG. CO. LTD., LONDON, ONTARIO




### Shipments of Oilburners and Units
(Including Exports)

Adjusted to include manufacturers other than the 152 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

| | FEBRUARY | | | TWO MONTHS | | |
|---|---|---|---|---|---|---|
| | 1949 | 1948 | Percent Change | 1949 | 1948 | Percent Change |
| Conversion | 17,625 | 16,285 | + 8.2 | 37,952 | 41,570 | — 8.7 |
| Boiler units | 1,999 | 1,791 | + 11.6 | 3,678 | 4,325 | — 14.9 |
| Furnace units | 3,752 | 4,869 | — 22.9 | 7,445 | 15,172 | — 50.9 |
| All domestic | 23,376 | 22,945 | + 1.8 | 49,075 | 61,067 | — 19.6 |
| Commercial | 1,788 | 2,572 | — 30.4 | 3,666 | 5,357 | — 31.5 |
| Total | 25,164 | 25,517 | — 1.4 | 52,741 | 66,424 | — 20.6 |




### March Minimum Retail Prices: Key Dealers

| | CONVERSION BURNERS | BOILER-BURNERS | FURNACE-BURNERS |
|---|---|---|---|
| Mar. Aver. | $341 | $698 | $592 |
| Feb. Aver. | 342 | 684 | 611 |

### Price Index: Conversion Burners: January 1949 is 100%

| WHOLESALE | | | | RETAIL | | | |
|---|---|---|---|---|---|---|---|
| Mar. | 135.6 | Six months ago | 145.8 | Mar. | 142.7 | Six months ago | 147.2 |
| Feb. | 139.3 | Year ago | 150.6 | Feb. | 145.6 | Year ago | 149.4 |

## Oilheating Trends

MARCH installations of domestic oilburners and units are estimated at 18,948, which is about six thousand below the February figure, but a little more than 17% above the total for March, 1948. Thus, March was the second consecutive month to show a gain over the preceding year, after a period of more than a year in which all comparisons had been unfavorable.

Total installations for the three months were estimated at 73,929, or about 5% below the 77,444 in the first quarter of 1948. March installations were divided as follows: New Homes 6,063; Replacements of old oilburners 4,358; Conversions from other fuels 8,527. For the full quarter, the division was: New Homes 26,819; Replacements 17,705; Conversions from other fuels 29,405.

BURNER STOCKS: Estimated stocks of domestic oilburners and units in dealers' shops on March 31 were 69,944, a moderate rise from the 62,741 at the end of February. Factory stocks on February 28, latest available data, were 44,180.

SALES FORECAST: Dealers were asked this month how they expect their total burner sales for this year to compare with last, based on their prospect lists and other factors. Country-wide, they expect to install 24% more burners than last year. This shows an increased degree of optimism during the quarter, since on January 1 they had answered the same question by forecasting a rise of 19%. It is important to notice, however, that in some sections of the country dealers show much less optimism. For example, Midwest dealers expect a gain of only 3% in burner installations over last year, and Pacific Coast dealers expect a decline of about 11%. The optimistic areas are New England, expecting a 37% rise, and the Mid-Atlantic states where the dealers collectively expect business to be up 41%.

GAS HEATING ACTIVITIES: There has been some pickup, according to dealers, in the number of gas companies around the country that are now in a position to add some new house heating customers. Not many are wide open as yet to take all comers, but a lot of them can take business in some parts of town where they still have line capacity.

Countrywide, the dealers report that 43% of gas utilities are now seeking new heating customers, and this compares with only about 25% a year ago. Geographically, New England dealers report 34% of gas utility companies out after home heating installations; Mid-Atlantic dealers find this activity among 48% of the gas companies in their markets; in the Midwest its 33% and on the West Coast 60%.

It is apparent, however, that the oil-heating industry does not expect gas competition to be greatly stepped up this year, compared to last, since the reporting group estimates that nationally only 8% more gas burners this year than last will be installed in their communities. New England dealers expect gas installations to increase about 2%, Mid-Atlantic dealers expect an actual decline of 9% in gas installations compared with 1948; Midwest dealers expect an increase of 26%; and Pacific Coast dealers look for a rise of 21%. Thus, there seems little probability that gas for heating will become more competitive this year in Eastern areas, but will step up quite a bit in the natural gas regions of the Midwest and Far West.

FUELOIL STOCKS: During the fueloil stringency period of 1947-48 a large group of fueloil distributors reported their stocks monthly for the benefit of the industry. Now that supply is plentiful, it is still desirable to check these local field stocks occasionally, and it is now planned to do this on April 1 and October 1.

On April 1 local fueloil distributors in the area East of the Rockies had their tanks approximately 20% full. In other words, they had approximately 4,367,093 bbls. of No. 2 or 3 distillate on hand in bulk tanks having a total capacity of 21,793,119 bbls.

### Fueloil Distributors Bulk Stocks

*No. 2 or 3 Distillates*

| | *Storage Capacity (Barrels)* | *Stocks April 1, 1949 (Barrels)* |
|---|---|---|
| New England | 3,229,740 | 872,030 |
| Mid-Atlantic | 12,026,659 | 2,405,332 |
| South | 1,085,987 | 108,599 |
| Midwest | 5,450,733 | 981,132 |
| East of Rockies | 21,793,118 | 4,367,093 |

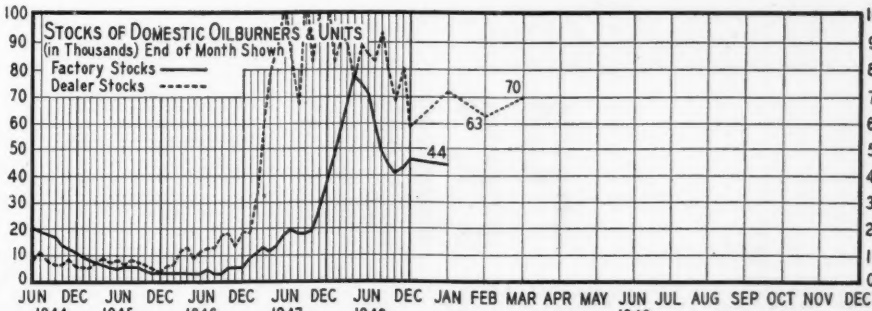
These stocks are not greatly different from what the group had a year ago on the same date, but the reasons for the low levels are quite different. Last year,

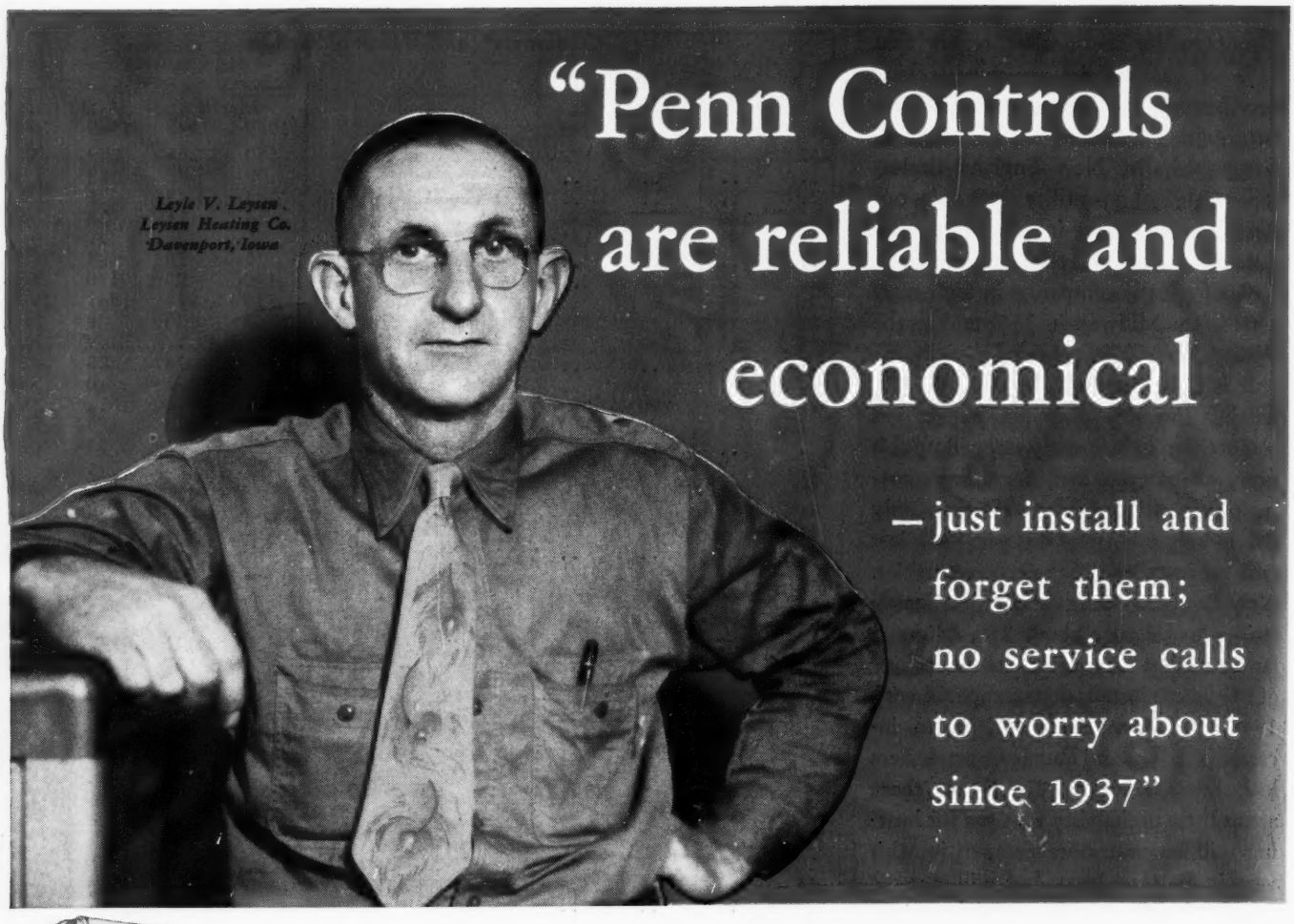
(*Continued on page 150*)

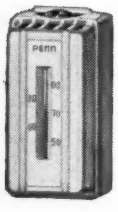
### Oilburners* and Building Permits

| OILBURNERS March 1949 | OILBURNERS March 1948 | OILBURNERS 3 MONTHS 1949 | OILBURNERS 3 MONTHS 1948 | | DWELLINGS March 1949 | DWELLINGS March 1948 | DWELLINGS 3 MONTHS 1949 | DWELLINGS 3 MONTHS 1948 |
|---|---|---|---|---|---|---|---|---|
| 432 | 26 | 971 | 372 | Baltimore, Md. | 150 | 268 | 279 | 655 |
| .. | .. | .. | .. | Binghamton, N. Y. | 9 | 3 | 23 | 6 |
| .. | .. | .. | .. | Bloomfield, N. J. | 3 | 5 | 6 | 11 |
| 432 | 280 | 971 | 1230 | Boston, Mass. | 13 | 11 | 28 | 59 |
| 39 | 33 | 173 | 183 | Bridgeport, Conn. | .. | .. | .. | .. |
| .. | .. | .. | .. | Buffalo, N. Y. | 3 | 14 | 34 | 52 |
| .. | .. | .. | .. | Des Moines, Ia. | 110 | 95 | 140 | 163 |
| .. | 493 | .. | .. | Detroit, Mich. | 972 | 913 | 1583 | 1950 |
| 31 | 38 | 115 | 178 | Elizabeth, N. J. | 4 | 0 | 9 | 0 |
| 13 | 15 | 47 | 33 | Freeport, N. Y. | .. | .. | .. | .. |
| .. | .. | .. | .. | Greenwich, Conn. | 9 | 26 | 28 | 39 |
| .. | .. | .. | .. | Hackensack, N. J. | 7 | 2 | 10 | 9 |
| 96 | 102 | 290 | 234 | Hartford, Conn. | .. | .. | .. | .. |
| 11 | 6 | 31 | 10 | Irvington, N. J. | 6 | 2 | 7 | 4 |
| .. | .. | .. | .. | Lynn, Mass. | 8 | 11 | 23 | 16 |
| .. | 7 | .. | 82 | Meriden, Conn. | .. | .. | .. | .. |
| 190 | 84 | 622 | 358 | Milwaukee, Wisc. | .. | 155 | .. | 268 |
| 41 | 71 | 188 | 335 | Minneapolis, Minn. | .. | .. | .. | .. |
| 14 | 13 | 31 | 37 | Montclair, N. J. | .. | .. | .. | .. |
| .. | .. | .. | .. | Morristown, N. J. | 0 | 0 | 0 | 0 |
| 12 | 11 | 43 | 28 | Mt. Vernon, N. Y. | .. | .. | .. | .. |
| .. | 51 | .. | 84 | Newark, N. J. | .. | .. | .. | .. |
| 58 | 60 | 250 | 184 | New Bedford, Mass. | .. | .. | .. | .. |
| 12 | 19 | 73 | 57 | New Haven, Conn. | .. | .. | .. | .. |
| 0 | 0 | 0 | 0 | New Orleans, La. | .. | .. | .. | .. |
| 20 | 13 | 41 | 34 | New Rochelle, N. Y. | 13 | 5 | 16 | 13 |
| .. | 5868 | .. | 15,815 | New York City (total) | .. | .. | .. | .. |
| .. | 5527 | .. | 14,744 | Brooklyn-Queens | .. | .. | .. | .. |
| 378 | 341 | 1085 | 1071 | Manhattan, Bronx, Rchd | .. | .. | .. | .. |
| 145 | 96 | 330 | 268 | Norfolk, Va. | 21 | 56 | 87 | 124 |
| 0 | 3 | 3 | 3 | Oakland, Calif. | .. | .. | .. | .. |
| 63 | 97 | 148 | 372 | Omaha, Nebr. | 48 | 65 | 60 | 106 |
| 8 | 11 | 18 | 23 | Orange, N. J. | 0 | 2 | 1 | 2 |
| 20 | 14 | 44 | 37 | Passaic, N. J. | .. | .. | .. | .. |
| 32 | 20 | 69 | 40 | Paterson, N. J. | 13 | 6 | 20 | 19 |
| 355 | 364 | 940 | 885 | Philadelphia, Pa. | .. | .. | .. | .. |
| .. | .. | .. | .. | Plainfield, N. J. | 3 | 8 | 11 | 11 |
| 20 | 8 | 54 | 46 | Portland, Me. | 11 | 27 | 15 | 27 |
| 459 | 573 | 1488 | 1262 | Portland. Ore. | 193 | 174 | 418 | 448 |
| 6 | 6 | 22 | 39 | Poughkeepsie, N. Y. | .. | .. | .. | .. |
| 60 | 29 | 144 | 101 | Providence, R. I. | 13 | 19 | 24 | 21 |
| .. | .. | .. | .. | Reading, Pa. | 7 | 4 | 13 | 5 |
| 39 | 21 | 224 | 206 | Richmond, Va. | 73 | 229 | 187 | 363 |
| 160 | 118 | 415 | 238 | Rochester, N. Y. | .. | .. | .. | .. |
| 8 | 19 | 45 | 50 | Rockville Center, N. Y. | 15 | 6 | 22 | 32 |
| 17 | 14 | 61 | 40 | Salem, Mass. | 1 | 9 | 8 | 10 |
| 119 | 83 | 329 | 255 | St. Louis, Mo. | .. | .. | .. | .. |
| 98 | 85 | 353 | 312 | St. Paul, Minn. | 47 | 63 | 82 | 135 |
| 40 | 58 | 130 | 245 | Schenectady, N. Y. | .. | .. | .. | .. |
| .. | .. | .. | .. | Seattle, Wash. | 148 | 183 | 308 | 551 |
| .. | .. | .. | .. | Springfield, Mass. | 34 | 40 | 64 | 69 |
| 26 | 24 | 121 | 141 | Stamford, Conn. | .. | .. | .. | .. |
| 13 | .. | 99 | .. | Syracuse, N. Y. | 48 | .. | 70 | .. |
| .. | .. | .. | .. | Trenton, N. J. | 3 | 2 | 5 | 2 |
| .. | .. | .. | .. | Utica, N. Y. | 3 | 2 | 4 | 11 |
| 38 | 58 | 245 | 292 | Washington, D. C. | .. | .. | .. | .. |
| .. | .. | .. | .. | West Orange, N. J. | 10 | 16 | 18 | 23 |
| 12 | 12 | 25 | 39 | White Plains, N. Y. | 2 | 5 | 24 | 20 |
| 51 | 70 | 171 | 163 | Wilmington, Del. | .. | 1 | .. | 5 |
| 47 | 59 | 266 | 216 | Worcester, Mass. | .. | .. | .. | .. |
| 26 | 48 | 62 | 80 | Yonkers, N. Y. | .. | .. | .. | .. |
| 3570 | 3002 | 10,638 | 9697 | *Totals* | 2000 | 2271 | 3557 | 4956 |
| +18.9 | | +9.7 | | *Percent Change* | —11.9 | | —28.2 | |

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.




"Penn Controls are reliable and economical
— just install and forget them; no service calls to worry about since 1937"
Leyle V. Leysen
Leysen Heating Co.
Davenport, Iowa



Customer satisfaction and dealer profit go hand in hand. Both are assured by the dependability of Penn controls. This is what Leyle Leysen has learned in 12 years experience installing Penn controls on heating equipment of many kinds.

"Install and forget them," says Mr. Leysen, who hasn't had service calls to worry about since 1937! Consider what this means to you and to your customers. Besides the dependable operation of Penn controls there is the added comfort of *closer temperature regulation with the Penn heat anticipating thermostat.* For more than 15 years the Penn thermostat has been providing this extra comfort — holding temperatures within a half degree of the selected level, banishing "cold 70" and eliminating fuel-wasting over-runs.

Experience means more than "language." It's the experience of dealers like Leyle Leysen that gives you assurance of more profit, less service "grief" and customer satisfaction that builds bigger business — when you standardize on Penn heating controls. **Penn Electric Switch Co., Goshen, Ind.** Export Division: 13 East 40th Street, New York 16, New York, U. S. A. In Canada: Penn Controls Ltd., Toronto, Ontario.

**Here's What Penn Heat Anticipation Does . . .**

* **Holds the temperature within one-half degree of selected level.**
* **Avoids "cold 70"; ends discomfort of "zig zag" heating.**
* **Automatically compensates for outside weather conditions.**
* **Provides more frequent, short burner operations instead of longer runs and standby periods, assuring even flow of warmth for greater comfort and fuel economy.**

*It "hugs" the selected level for closer temperature control*

**PENN**

**AUTOMATIC CONTROLS**

**FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES**

# Mules in The Industry?

## A Provocative Comment on Factory Prices for Burners

by
William Manders

ONCE UPON A TIME there were two mules who lived on the most prosperous farm in their county. They were very strong and very healthy because the farmer who owned them always fed them well and gave them plenty of rest.

But they starved to death.

And within easy reach of more hay than they could possibly consume.

They died because each mule was extremely proud and thought he was better than the other mule. Their attitude about each other bothered the farmer because more often than not, the mules wouldn't work as a pair.

So he tied them together and put two bales of hay in the barnyard about 30 feet apart. The mules tugged and strained in the area between the bales. Each mule wanted a bale by himself. And because each was as strong as the other, they never got anywhere. Finally, completely exhausted, they died.

It never occurred to them to walk over to one bale and eat that and then, still tied, to walk over to the other bale.

All of which may seem very out of place on these pages. But it isn't.

There is plenty of hay in the national barnyard for everybody in the burner business. And that hay will be there for a long time. But some people are like mules. They might consider what happens to stubborn, long-eared animals when they don't use their noodles.

An industry that produces accessories cannot boost sales by cutting prices, but only by improving the product. An oilburner, like it or not, is an accessory. It is an accessory to a house. No more burners will be sold than there are houses —even if the price gets down to $10. And anyway, it isn't the cost of the burner that determines the sale nearly as much as it is the cost of the fuel to be used. A homeowner does not want to spend his money for a heating plant. To him it is simply a necessary evil. If he had a million dollars and lived in the South Seas he wouldn't buy a heating plant. But if he only had one hundred dollars and lived somewhere north of the Mason and Dixon line, he would find some way to heat his house. And generally he would look for the easiest and most economical way of doing it. Easy and economical to him means more the cost and ease of the fuel to be used than the equipment that burns the fuel.

There is a good parallel in this industry of ours and the automobile tire business. The number of tires sold as original equipment on new cars is determined by the number of new cars the automobile companies are going to sell. Price cutting by tire companies merely rips the guts out of the tire companies' finances, but won't sell in the aggregate one single additional tire. On the other hand, competition among the automobile companies can sell additional autobiles, since the rate at which existing models become obsolete or are sold at second hand by owners desiring new cars can be influenced very strongly by the designs of the new models and the price policies of the leading companies.

Maybe you will say that replacement tire prices have something to do with total demand, because when there are price wars in the tire industry the number of tires sold generally increases for awhile. That's true. But only half way.

When, in the course of a tire price war, prices drop to levels that the average buyer recognizes to be abnormally low, he will stock up. To that extent, the price war merely borrows future demand and kills a potentially profitable future sale by making an unprofitable immediate sale.

Do you remember the old gasoline wars back in the thirties? Some car owners bought gasoline by the barrels-full and stored it at home. Then when the price battles were over and gasoline back at profitable levels for the industry and the dealers, these car owners used up their stored gasoline. You can remember that. The highways were lined with abandoned gas stations. A lot of stubborn mules died from that experience.

The oilburner industry is fairly close to the tire industry in relationship to sales and prices.

Oilburners sold in new houses represent so small a percentage of the cost of the house that minor changes in prices can have no significant effect on total demand. A 10 per cent cut in the price of an oilburner to the contractor, even if transmitted in full to the ultimate consumer, would have no effect whatsoever on demand—for houses or oilburners—it would merely eliminate the profit of the manufacturer.

In the case of conversions the same logic still holds. Whether moderate changes in the cost of an oilburner will increase the number of sales is doubtful. What matters most to the buyer is the dependability of the installation and the price of the oil. Whether one type of heating equipment costs him a few dollars more or less than others hardly enters his calculations.

And the tendency towards a price war in the industry today involves only a few dollars per burner. Nothing of any significance one way or another to the homeowner; all it means is the elimination of profit to the manufacturer —and, naturally, the elimination of a lot of manufacturers.

We are not arguing here about jacking prices up unusually high. That policy obviously is just as short-sighted as cutting them too low. Good old-

fashioned competition at reasonable price levels is the best longrun policy for the industry as a whole and for the individual units within the industry.

Of course, if the industry wants to give away its profits to consumers, that's the industry's business collectively or individually. But a price war won't sell one single additional burner. Naturally, if the burner industry were able to assure prospective purchasers of a state of continual price war in the petroleum industry, sales would skyrocket. But the petroleum industry has had enough experience with price wars and it is unlikely that any significant mule-like tendency will develop—at least in the foreseeable future. Lowering the price of fueloil would help the burner people. Lowering the price of burners further cannot achieve anything but harm.

Now let's look at the man who doesn't have an oilburner today. The reason he does not have one might be that he cannot afford one at all. If he could not afford to buy a burner during 1948, when income payments to individuals reached an all-time high, the chances are pretty certain that he won't soon be able to afford one. So scratch that man from the potential market.

If, however, our man can afford a burner and doesn't have one, then the only reason must be that he thinks he has a less expensive or better installation. But the installation he does have is not less expensive or better because the heating plant costs less. He considers it better because his fuel costs are less. The sale of oilburners will go right through the ceiling when they represent a saving in fuel cost. The sale of burners will remain static, however, when burner prices are slashed.

There is nothing our industry can do about the fuel cost situation. There is plenty it can do to increase its over-all sales. One sure-fire way is to develop more efficient heating systems that will consume progressively less oil per b.t.u. provided.

Another way might be to consider a little salesmanship.

### Production Minded

Except for several notable exceptions, our industry today seems to be production minded. Not sales minded. Perhaps this philosophy is a natural phenomenon of the war years when all emphasis was placed on production; and when anyone with a modicum of salesmanship in his veins was taught to say no.

There are about 175 to 180 manufacturers of consequence in the industry right now. These are the firms making sound products, have Underwriters' listing and make conscientious effort to put value in their burners and accessories. Just a handfull in this group could—and without too much effort—make more than enough burners to supply the entire country's needs. If some in this group decide they want to eat all the hay they may generate a titanic struggle and succeed in starving themselves and everyone else to boot.

The way for the burner industry to continue its successful growth is not to chop prices, but to see what can be done about improving the product and then hitting the road with salesmen who have zip and courage and are backed with the confidence of a good product. Price cutting in the accessory business, as we have seen, won't sell more burners in the aggregate anyway.

### Some Products Too High

Admittedly, there are lots of components used in the housing industry where price-cutting is very much in order. Heating equipment doesn't happen to be one of them. There were plenty of people who raised prices after the war simply because they could get away with an exorbitant charge. So now, when the buyer has become more important than the seller, abnormally high (and unfair) prices naturally have to come down. Take a look at some of the wholesale prices of building materials as supplied by the Department of Commerce. All building materials climbed from an index figure of 90.5 in 1939 to 201.4 at the end of February, this year. That's a 122.5 per cent gain. The index base of 100 is 1926. Lumber went from 93.2 to 296.5, or a gain of 218.1. Paint and paint materials are up an even 100 per cent; while some other components like cement are up 47 per cent and structural steel up 66.6. Prices for oilburners are up only 36 per cent above 1940. That is certainly a good record in the light of other price patterns. But, with higher material and labor costs today, there's not much room for price cutting—at least price cutting which would still leave a profit for the manufacturers. And assuming, of course, that there is still some desire within the industry to make a profit. Plumbing and heating on the price index, incidentally, are up from a base of 79.2 in 1939 to 156.1 in February, 1949—a gain of 97.1 per cent. This is below some of the other components in the index and, admittedly, above others like cement and steel. But the increase is not out of line with other products used in the building industry. And it certainly is not out of line with all products from automobiles to knitting needles.

The burner industry has a big future ahead; if it devotes its energies to improving its product and concentrates on salesmanship. Price cutting won't sell more burners, but it might sell the perpetrators down the river.

# Recruits for the Sales Force

## Finding Suitable Men Is a Never-Ending Job for Most Dealers

by
Ray Horan*

TAKE ONE prospect and one piece of good equipment handled by a competent dealer. Add one salesman for his catalytic properties and stir well together. Result: one unit of new business, the essential corpuscle in the life blood of the oilheating industry—or any worthwhile, growing industry.

This formula for making new business contains one ingredient that cannot be omitted now or in the future. For any appreciable volume of new business in the next years, the salesman catalyst must be present. Since he is an essential material in the recipe it is of paramount importance that an adequate supply be available.

Recruiting salesmen is not a job to be taken lightly. The small dealer must be on the alert constantly for the man who can be trained to sell. The medium and large dealers must work out systems of recruiting on a more or less continuous basis that will keep their sales forces up to strength, for it is a characteristic of retail salesmen that they usually are on the move, and have to be replaced. The more training they are given and the more skillful their management, the less they are inclined to move.

Dealers and salesmanagers today charged with recruiting salesmen will find a different type of applicant than in the 1930's. Applicants during the depression years included a high percentage of well trained business and professional men, many of whom were looking only for a stop-gap job. Many had no intention of making selling a career beyond the time when they could get back into their chosen fields. Applicants today probably will be fewer in number with less training or background in business or the professions. Frequently they are factory workers, unskilled laborers or youngsters out of school who are interested in a career. The raw material may not be so promising in some regards as we had during the depression years, but what it lacks in background and previous training will be made up in the sincerity of many who are looking for new lnes of work. A man who sincerely wants to get out of overalls, for instance, has an incentive to make good that may be lacking in others.

Obviously, all applicants for a sales job in the oilheating industry will not fit the requirements. The dealers or salesmanagers will have to determine for themselves which men fit their particular specifications and have possibilities for the job to be done; which can be trained to sell oilheating installations, fueloil, service, accessories and other equipment in the line to old and new prospects.

### Number Of Men Needed

As has been pointed out here before, the dealer or salesmanager must determine from available figures on his city what part of it he is to cover—if not all—and from the number of owned homes of $6,000 valuation and more determine the number of men required, each covering 3,000 qualified, homeowning prospects. In a town of 50,000 population, for instance, we might find 12,000 homes, 6,000 of which were owner occupied in a valuation bracket that would make them prospects. In such a town the dealer would need at least two salesmen.

It has been argued that in many of the better oilheating markets there is a high percentage of oilburner saturation, and therefore each salesman should have 5,000 or 6,000 qualified, owned homes. It must be kept in mind that the 3,000 figure is based on *owner-occupied* homes. The area also will contain many rented homes that will be prospects, though not considered in the calculation. Further, present users of oilheating equipment are good prospects for replacements, service, oil and the other lines sold by the dealership.

Too little attention has been paid by dealers to present oilburner users in their territories. Most modern oilburners have been much improved in recent years, and the installation techniques and materials available now make it possible to do a better job than in prewar days. Owners of eight and ten-year-old equipment do not know about the advances the industry has made. They do not know about the more efficient combustion possible with modern oilburners, the closer regulation of temperatures with present day controls, or the fuel saving possible with modern boiler and furnace units. These people do not have to be sold the comfort and convenience of oilheat. They have been living with it, but they will be interested in greater comfort and more carefree heating at a saving over present fuel bills. A ten-year-old oilburner is more obsolete than an equally old radio or refrigerator, yet this industry never has used the factor of obsolescence as other industries have who are competing for the customers' dollars. Certainly there will be oilburners in the salesman's territory, but these existing users are assets if you train the salesman to use them. A quick survey in Philadelphia a few years ago revealed 177 different makes of oilburners totalling several hundred installations in one area that were orphaned by the disappearance of the manufacturer, the installing dealer or both. How many are there in your city?

### Limit the Territory

Selecting a territory to be covered and deciding on the number of salesmen required calls for a brand of self-restraint too frequently lacking in dealers and their salesmanagers. Dealers in towns with populations up to about 100,000 probably will be able to cover the entire area without much trouble. In larger cities the dealer may have to determine for himself, based on the capital available, and his physical plant and equipment and technical staff, how

(*Continued on page 152*)

*White-Rodgers Electric Company.

# Service for Others

## Breed of Boston Handles 30,000 Burners for Several Companies

by
Robert Gray

OILBURNER SERVICE has long been recognized as a highly important segment of the oilheating industry's job . . . the job of helping a few million families to live better. However, it has often been a pain in the neck from a dollar standpoint, and rare indeed is the oilheating dealer who can say that the department stays out of the red.

One possible solution frequently mentioned over a number of years has been the joint service organization or community shop that takes care of all the service requirements of several fueloil distributors and oilheating equipment dealers. Years ago, this seemed almost Utopian in its appeal, but in a number of communities where it was tried, it proved short-lived.

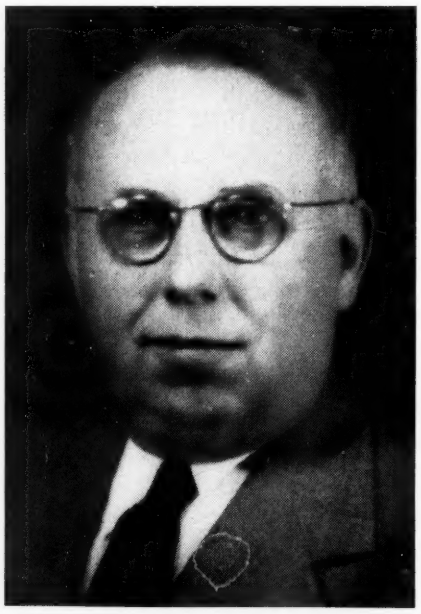
The difficulties were the obvious ones. The dealer might feel that his customer was being overcharged by the service organization. Again they sometimes found that the service organization lacked the necessary personal interest in the customer, a serious lack that might jeopardize the oil account. There had been instances of refusing service on difficult winter nights, or at least making it clear to the customer that the service man considered the call an imposition. So with a few notable exceptions, such as Wolle in Westchester County, New York, the hireling organizations didn't fill the bill.

Several times in the past couple of years has been mentioned a new type of service organization in Boston that appeared to have successfully overcome the standard objections. Some oil men, who were utilizing this firm's services, seem to be experiencing considerable satisfaction. The firm is the C. A. Breed Company, located in a fine new building in West Newton, one of Boston's western residential suburbs. A day spent with Breed and a number of his men studying the company's operation brought the conclusion that this apparently is quite a successful operation from the standpoint of all concerned. Certainly it is a most impressive layout.

The company handles any and all burner service requirements for just over 30,000 oilheated homes, and about 600 big buildings using residual oil for heating. At present only one-third of these service accounts are being handled on behalf of outside fueloil distributors, while two-thirds or approximately 20,000 are Breed's own direct customers. With the company's present facilities, new buildings, shops and the like, Breed could eventually handle about double the present volume, so he is looking for more fueloil and oilheating dealers who want him to handle the service end of their businesses.

In asking Breed how he determines the number of customers that he has, or in other words, what he actually calls a service customer, it is any oilheated building for which he has been told he is responsible. If there has been no service furnished to that building within an eighteen month period, the name is removed from the list with the assumption that probably some other arrangement has been made.

The total billing of the Breed company in 1948 was $1,250,000, and of this amount, just about a half million was for burner service, and the balance represented sales of new oilheating equipment. The company sells Oil-O-Matic burners for residential and small commercial applications, and Todd burners for heavy oil. Last year, the 60 Todd installations that were sold accounted for about a quarter of a million dollars billing.



Breed

C. A. Breed, who organized the company a number of years ago, remains its sole owner, but he has a substantial staff of management men responsible for the general conduct of daily operations. James G. A. Mitchell is general manager, and while he has a finger in each of the company's pies, his strongest personal interest is the heavy oil work. Harold Davies, assistant general manager and widely known in Boston oilheating circles for a number of years, joined up with Breed last September, and pays more attention to the domestic end of the business.

### Retain Customer Contacts

In offering to take over the service operations of outside companies, principally fueloil distributors, Breed believed that he could get away from some of the common objections by working through the oil company rather than directly with its list of customers. All service calls come to the oil company and are relayed to Breed's office. There are one or two exceptions to this whereby the oil company has one of its own telephones placed in Breed's office, and the operator always answers with the name of the oil company rather than Breed. All billing of customers is done by the oil company, but the Breed organization determines what that billing is to be. In other words, after each service call, unless it happens to be a contract customer, the Breed organization sends a bill giving the details and charges to the oil company, and then the oil company sends out an identical copy to the customer. If desired Breed will type the bill on the oil company's invoice form. It is necessary that the

**The new building** *in West Newton on a snowy night. Coils imbedded in the walk keep it clear.*

billing be identical in amount because of the interlocking arrangement by which customers often call in to the Breed organization to discuss work that has been done or the billing on it.

At the end of each month Breed sends to the fueloil distributor a tally of all of the monthly billing on his account, and then allows the oil company a ten percent discount. The oil company is obligated to pay the bill just as presented by the 10th of the month, and if there are any disputed items, they will be credited later after the disagreement has been cleared up. The ten percent that the oil company gets as its part of the total service billing is not looked upon necessarily as profit, but rather it's to take care of special cases. For example, they might consider it advisable not to charge a customer in some instance, or there might be credit losses or other contingencies.

The intent of the whole plan is to provide the oil company's customers the highest grade of oilburner service at reasonable price, but without any loss to the oil company. Breed has a standard scale of charges, using the identical ones for the oil company's customers as he does for his own customers.

A simple service call is $4 for the first hour and $2.50 for each additional hour, based on time actually spent in the basement. The accountants point out that the initial $4 charge actually represents about $2.50 for the hour in the basement and $1.50 for getting there. Annual contracts, of which there are approximately 8,000, sell for $20, not including parts. An annual cleanup and overhaul for customers not on contract brings $10. Breed points out that from his experience any dealer would have to have a minimum of 4,000 service customers to be able to operate his own service department in Boston without loss at this schedule of rates.

The oil companies, of course, get the same ten percent discount on the contracts and annual overhauls that they do on the individual calls. They also get the discount on any parts that are necessary, even including a replacement burner. Sometimes when a burner replacement is called for, the home owner may not have the necessary cash, so even though the oil company does the billing Breed will carry the installment paper if the oil company wishes. This also applies to a boiler replacement or a tank replacement, or any other particularly large item.

Breed is not in the oil business. His sales department naturally has opportunities to take oil contracts because the company does a rather large business in original installations. These contracts are taken by the burner salesmen and then turned over without reward to the oil companies that Breed serves, on a ratable basis. In other words, contracts are given to the oil companies in rotation, but also in ratio to the amount of business these companies give Breed.

Getting back to the discussion of annual service contracts, Breed arranges that most of these should expire December 31, rather than at the end of the heating season. He feels that the home owners will send in their checks for renewal promptly at that time of the year

because they might need service almost any day. The service contracts are self-perpetuating in that they never need to be renewed but can be terminated on 30 days notice by either party. When the billing for the new year goes out in early January, Breed sends along a friendly personalized letter thanking the folks for the business and carrying other interesting information about oilheating. Of course if it's the service customer of one of the oil companies, this goes on oil company letterheads.

The oil companies particularly like the year-end termination of the service contract period because it offsets by several months their fueloil contracts, which usually have a June 1 termination. Thus the customer is always using one or the other of the oil companies' contracts, either oil or service, and each contract has a tendency to help perpetuate the other one.

Another advantage in having a service contract terminate at the end of the year is that the annual overhaul jobs can start any time that the men have slack periods. Burner service requirements are usually weakest in the Spring months, so Breed's annual cleanup work is well underway by the end of March.

The detail of the Breed Company's service functioning is not too different from that of other well-managed companies, except that being much larger it can be better streamlined on some details. The company has 60 service men of which 8 spend full time on heavy oil work. The customary routine is for a man to phone in at the start of a day, unless he has been given an assignment the night before. He then is sent on a job in a particular zone, and usually is able to work in that same zone all day. After each job is completed he calls in for another assignment. The dispatcher is not permitted to give him more than one at a time because he never knows how long he might be tied up on that one call. In phoning the office after each call, the man must never go up into the house and use the family telephone, principally because his clothes are dirty, and the lady would be a little nervous about his brushing the furniture. So, he must go to the nearest corner drugstore or other public booth.

Sometimes a customer needing service will insist on getting a particular man, because she thinks he did good work the last time. This is never permitted in the Breed scheme of things and the customer is tactfully told that unfortunately that man is ill or out of town or something of the like. The company feels that the economies gained by keeping a man working for a particular day near the spot where he has started are too important to sacrifice by pleasing the customer on this one point.

Quite a lot of service work is done on definite time appointments with customers. This applies particularly to annual overhauls and other major time consuming operations. In the dispatchers' office is a stack of daily program sheets dated as much as 45 days in advance on which these specific appointments are entered. As each new day approaches the program sheet for that day is taken from the stack and the appointments on it are the nucleus for that day's work. The company is meticulous about keeping appointments at the exact time. In rare cases when this cannot be done, the customer must be notified well in advance of the appointed hour so that she is free to leave home or in any event dismiss the date.

Four dispatchers are kept busy handling service and during the season they handle as high as 800 calls in twenty-four hours. There are two dispatchers on the night shift until 10 o'clock and one from ten until morning every day in the year. In the dispatching room of the new building are two bunks where the night dispatchers can get some sleep in the small hours if things are quiet.

### Radio Cars At Night

There are six service cars regularly used on the night shift. Each is equipped with a radio telephone so the service man can phone in after each call, just as he would in the day time, but of course, at night he has no access to drugstore telephones for the purpose. The company pays for this radio-telephone service $25 a month for each car.

Breed finds that the peak hours for burner service calls are between 7:30 and 9:30 in the morning, then between 5:30 and 7 p.m., and during the hour of eleven to twelve midnight. The reasons are fairly obvious. The morning calls represent difficulties of the night, the early evening calls are enlarged by people returning home after being away for the day, and the late night calls are those who have been out for the evening, and find the house chilly at bed-time.

All told, the company operates 50 service cars and trucks, but in addition to this several of the service men drive their own cars for which they are paid the flat rate of six cents a mile.

Breed expressed the thought that the basic operation in his business is handling men. The core of the whole enterprise is the group of 60 service men. Considerable effort is made to get the men interested and enthusiastic about their work and the company, and to give them a strong sense of well-being and security in their efforts. Indicative of his thinking is the fact that all men understand that they are hired for full-time work throughout the year. That assurance would be reasonably expected in a small organization but it takes man-

James G. A. Mitchell  Harold Davies

**Rebuilding shop,** *where eight men rewind motors, restore controls, fix up burner pumps and other oilheating parts and accessories.*

agement to make it effective in a large one, considering the normal seasonal ups and downs.

The men are paid over a range from $.90 to a $1.65 a hour, averaging about $1.30. There is no specific work week. It ranges from forty-five hours at mid-Spring to as high as 70 or 80 hours in mid-Winter, averaging approximately 54 hours throughout the year. The men particularly want long hours in the week, for in the winter time the checks average from $70 to $100. Breed knows the service operation is definitely unprofitable in slack seasons, but he insists on keeping all men the year round for two principal reasons. Good men are not easy to locate, and when they do show up the full employment guarantee is a strong sales point in recruiting them. Again, the greatest service rush is in early fall and Breed believes it would be fatal to throw a lot of new and untried men into that peak operation.

The men have two weeks vacations in the summer at full pay based on 54 hour weeks. With the exception of a small emergency crew, the whole outfit leaves at one time. In other ways Breed keeps the men interested in the organization by some of his own personal activities. For example, he is an aviation enthusiast, flying his Stinson four-seater 600 hours a year. One important use of this plane is taking both customers and his own employees on occasional interesting trips. In summer the Stinson is busy weekends as Breed commutes to his camp on Lake Winnepesaukee in New Hampshire.

The equipment sales department, as mentioned earlier, is the real profit producer on the books. At the same time, the service department contributes to large equipment volume at an extremely low sales cost. For example, a number of oil salesmen for the fueloil distributors that the Breed organization serves enjoy taking orders for oilburners because that gets for them the oil contract. Breed supplies a man to do the technical thinking and figure the job for the oil salesman. The only cost to Breed for this sale is the ten percent discount in the billing price that he allows to the oil company at the end of the month. Again, oil salesmen who do not want to sell burners, supply a lot of leads because they want to get the future oil business.

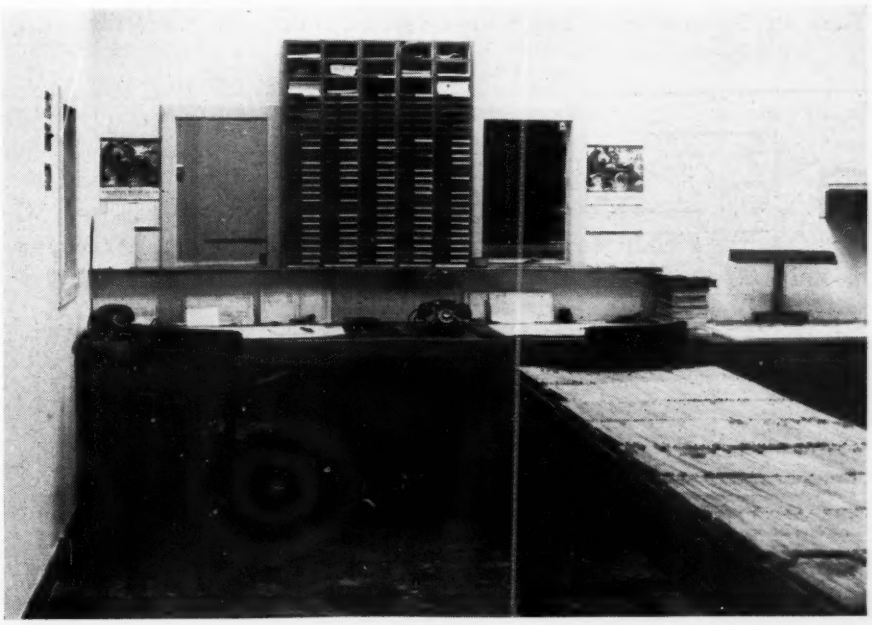
For his own direct selling Breed has four full-time salesmen and a sales manager, which is a very small crew in view of the fact that he conservatively expects to sell this year upward of 1,200 domestic burner installations.

About 900 of those burners will be replacement sales. This represents approximately 3% of the total service customers on the books. In addition to the burners, naturally this work involves a lot of complete units, new boilers or furnaces, and the like.

In a business as large as Breed's the men are from time to time given unusual assignments. For example, they have done some work with snow melting. At Breed's new building both the driveway and the walks have imbedded coils to do away with wear and tear on snow shovels.

The system provides 200 Btu's per square foot. This will handle a snow fall as heavy as two inches an hour under the relatively high temperatures that are prevalent whenever a snowfall is that heavy. It is important to start the snow melting system just when the flakes first fall. If the engineer waits until there is

(*Continued on page 156*)



**Dispatching room,** *where four daytime and one or two night operators handle customer calls and other routing of the 60 service men. The pigeon hole cabinet arranges call slips for the men by zones. Customer cards are filed by zones, streets and numbers rather than by names.*

# Low Pressure Burners

## 4. Operating Priniciples of Hart and Hev-e-Oil Equipment

Fourth and last of a series by Fred Feigenbaum* and John E. Dignam*

PREPARATION OF OIL and air for delivery through low pressure nozzles was a red-hot problem for early designers. Thousands of ideas were tried in efforts to arrive at a smooth spray and a quiet, efficient fire.

The designers of the Hart burners were among the pioneers. They observed that in the early single-delivery types slugs of fuel were being delivered to the nozzle. In their early burners they provided a means of draining off these slugs to a sump, to be reprocessed by the pumping system. This was the method employed in their Model C burner, a rather complex machine, but outstanding in its time.

Because this was only a partial solution to the smooth spray problem they turned to parallel delivery, designing a Cycle type burner to accomplish this.

The use of the Basic Cycle will not confuse the readers of these pages. But the control parts designed around it in the Hart burners have confounded many service men. It is characteristic of the engineering mind to make use of whatever factors are present in any machine for the operation of controlling devices. The Hart burner inlet controls are actuated by the vacuum developed at the entrance of the compressor. They are not really puzzling once the needs of the burner are understood.

The oil and air are admitted to the compressor through the same tube. This necessitated placing the air inlet above the top of the storage tank. This air inlet became a natural oil cut off device, or siphon breaker for use when the burner shut down.

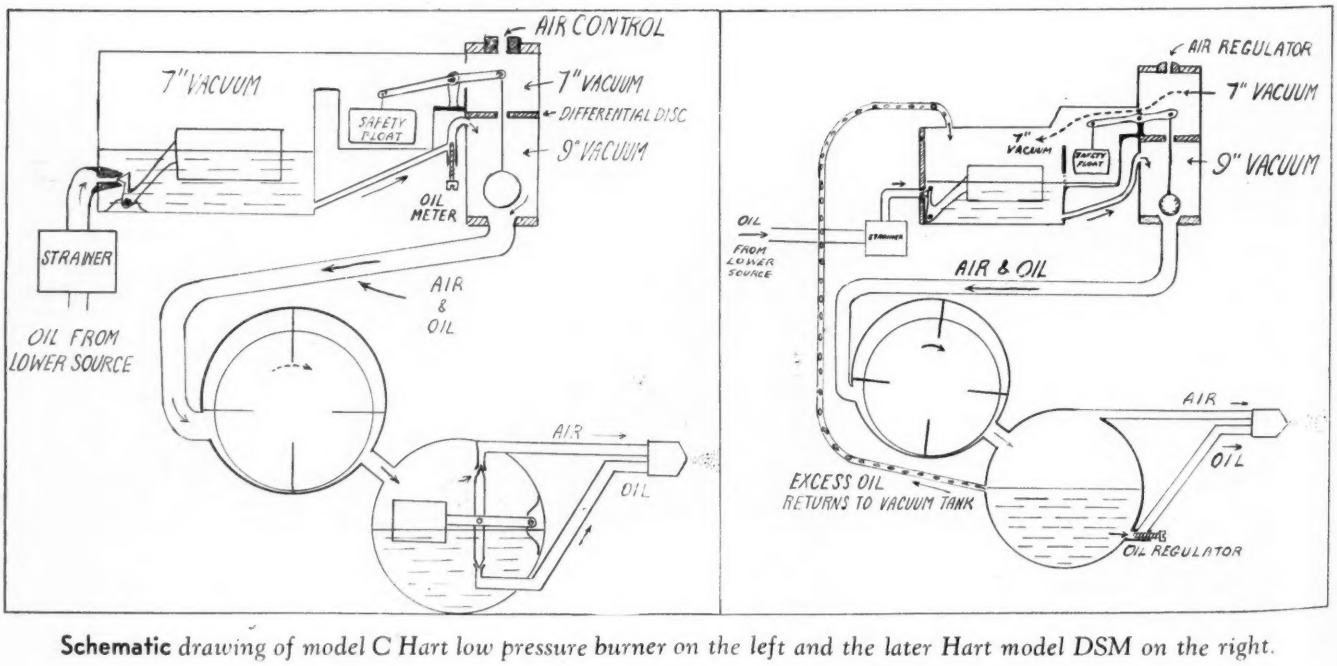
Control of the air and oil balance was not as simple as that. It would be easy to pump too much or too little oil by this means. A float operated inlet valve was placed in the oil circuit at a point nearly as high as the air inlet. This is the *vacuum tank*.

This vacuum tank should be considered as nothing more than a constant level valve. Its purpose is to maintain a constant pressure on the fuel adjustment device which is in the inlet side of the system. When this combination is regarded in this light there is nothing here more complex than the fuel control system of the typical wall flame rotary burner. The only difference is that these devices operate under vacuum.

For the average installation it is necessary to maintain a vacuum of about 7 inches at the vacuum tank to draw the fuel upward into it. An orifice at the air inlet restricts the air flow to obtain this vacuum. This orifice is also employed to control the pressure on the nozzle side of the system, by governing the quantity of air being pumped.

To eliminate the need for a valve to cut off the flow of fuel from the vacuum tank to the compressor at shutdown, the system delivers the oil uphill from the vacuum tank to the air intake chamber. For this purpose it is necessary to develop a second stage vacuum, in the lower part of the air chamber. Another orifice is used to accomplish this, the DIFFERENTIAL DISC, through which the air must travel before it meets the incoming oil. The resistance of the differential disc causes an increase of about 2 inches of vacuum above that in the upper chamber. The difference between the two stages of vacuum draws the fuel up from the vacuum tank through the metering valve.

*Automatic Heating Department, YMCA Trade and Technical School, New York.




**Schematic** *drawing of model C Hart low pressure burner on the left and the later Hart model DSM on the right.*

These two stages of vacuum, totaling about 9 inches, naturally affect the air-input of the compressor; it operates with an intake pressure of only about 2/3 of an atmosphere. At this low inlet pressure the compressor produces the proper nozzle pressure. Most compressors of this kind draw in only part of the air they are capable of pumping when not working against a vacuum.

There is one other mechanism in the intake side of the Hart burner, the *safety float valve*. This causes an uninformed service man to get really foxed up, because he often believes it is an operating device. It consists of a small chamber placed between the vacuum tank and the air intake chamber. In the early models of the burner it was open to the vacuum tank only at the top.

In effect it gives the same kind of protection found in the constant level devices used with certain other types of burners; an added float prevents operation of the burner under conditions of flooding. If the intake float valve should fail to close tightly enough while the burner is running the oil level in the vacuum tank will rise to a level at which oil spills over into the safety float chamber. A float rises, moving a lever, attached to a ball. This ball falls into a seat at the bottom of the intake chamber, cutting off the flow of both oil and air to the compressor. Unable to obtain air the compressor fails to provide pressure for the sump and the nozzle, and the fire goes out. The burner will not fire again until the safety float chamber has been drained. The float valve mechanism must be repaired to prevent recurrence of the trouble.

If this safety device were not built into the intake system the effects of flooding the vacuum tank might be serious. There would be no metered control of the fuel, and the sump would fill as fast as the compressor could supply it. With the float sunk in the vacuum tank, the compressor would be handling the maximum rate of fuel available through the wide open float valve.

The Hart compressor is an eight vaned continuous process air pump, similar to those used in other low pressure burners. It is an efficient, long wearing, quiet mechanism, able to produce proper pressures even after long use.

The sump, a small tank slung beneath the compressor, is lower than the nozzle, therefore no nozzle tube cut off valve is needed. Oil in the nozzle tube drains back into the sump at shutdown.

Because the fuel is metered in the inlet system, the float valve in the sump controls the rate of the oil going TO THE NOZZLE, following the rule given earlier in this series of articles. Its function is similar to that of the Oil-O-Matic float, but in addition it controls the air pressure in the sump by operating a valve at the air outlet to the nozzle. In other words, if the oil rate is increased, the float rises to feed oil to the nozzle at a higher rate, and at the same time it partly closes the air outlet, causing an internal pressure increase.

This valve is somewhat more sensitive to changes in the metered rate of the fuel, because of the added control factor. The wait between adjustments therefore is shorter.

The oil from the sump does not meet the nozzle air until the last stage of delivery in the mixing chamber of the nozzle. The mixture is whirled rapidly as it approaches the sharp edged orifice, through which it is whipped out into the firebox in a fine mist, well prepared for combustion.

At the exit point of the burner the mixture meets the air being delivered by the fan, and swirled by a conventional turbulator. The combination can be adjusted to high efficiency.

### Hart Model DSM

A later development of the Hart low pressure burner series is the model DSM. Many of the original features were retained in this model, but some changes were made in the oil handling system.

The vacuum-operated inlet controls were modified, and the oil metering adjustment was placed in the pressure side of the cycle. The sump level control was simplified greatly.

The air and oil to the compressor are brought in through the same tube. The air inlet orifice for this reason must be above the level of the tank. The vacuum tank, safety float chamber and the air inlet are in about the same relation to each other as in the earlier burner.

A vacuum of 7 inches is drawn at the air inlet orifice by the compressor. This is exerted across the safety float chamber and into the vacuum tank, providing the force to lift the fuel to that level.

The differential disc in the air intake chamber provides the lift from the vacuum tank to the air tube. The total vacuum beneath this disc is about 9 inches. There is no oil adjustment in the tube between the vacuum tank and the air intake chamber. The compressor draws in the oil and air, pressurizes them, and delivers them to the sump for separation.

The most important departure from principles used in other burners is the oil level control in the sump. There is neither a float nor any kind of valve in it. There is merely an outlet tapping about midway in its depth, and all oil reaching this port is forced by pressure out of the sump. A few feet of thick-wall 1/4" tubing conducts this oil back to the vacuum tank.

In the process of bypassing the excess oil back to the suction side some air from the sump travels with it. The small diameter tubing is used to prevent too much air from being lost from the pressure side by this action. Some of the pressurized air is wasted to gain the simplicity of the floatless sump level control.

The sump is on the outside of the blast tube, and the nozzle assembly is bolted to its inside surface. Lower than the nozzle, the sump receives any oil remaining in the nozzle tube at shutdown.

With this type of sump control the oil metering device must be in the oil tube TO THE NOZZLE, instead of its former position at the oil entrance to the air intake chamber. It is a simple screw type valve.

Another change made in control parts of this burner is in the safety float chamber. Previously it was necessary for a flooded vacuum tank to spill over into the chamber. In the DSM series the vacuum tank and safety float chamber are equalized top and bottom, so that any unnatural rise in the oil level immediately affects the safety float. This will rise and drop the safety ball into its seat before the former spilling point is reached.

This feature has led to some queer reactions, difficult for the service man unfamiliar with the Hart burners to understand. In the usual case of shutdown caused by the safety float the flame falls, and the control panel recycles and starts the burner with no fire. After the usual 90 seconds the burner stops "on safety."

When the service man finds the control panel off on safety some hours later he restarts the burner and observes nothing unusual. The fire starts and burns in the normal manner, and the next shutdown probably happens a half hour after he leaves.

During the long off period the oil fell back through the leaky float valve, dropping the safety float to its normal position, lifting the ball out of its seat in the path of the mixture going to the compressor. If the valve leak is small it may take half an hour or more for the vacuum tank to flood to the shut off point again.

A variation of this action involves a slow-acting control panel inlet valve leak, with which the vacuum tank is flooded rapidly. The fire might go out after a minute or two of operation. The control panel opens its holding contact and recycles slowly for starting. During this time the oil in the vacuum tank leaks back into the inlet pipe. The safety float falls lifting the ball valve. The burner restarts with fire, again drawing too much oil, and the safety float again closes its valve. This operation can be repeated over and over, to the bewilderment of the untaught service man.

In servicing low pressure burners in which the compressor pumps the oil it is good practice to get into the habit of using a vacuum gauge. Suction troubles in the Hart burner cannot be found without such a gauge.

A common cause of oil stoppage is a dirty strainer. In this case the vacuum gauge installed at the top of the vacuum tank reads normal, indicating that the compressor is doing its job, but the 7 inch vacuum is not able to lift the oil four feet. If a plugged strainer is not holding the oil back, some other kind of suction line resistance has developed.

### Parallel Delivery in the Hev-E-Oil Burner

The discussion of complete parallel delivery has been left until this point because the method contains features not brought out previously. The Cleaver-Brooks Hev-E-Oil burner is an example of the application of the method.

Externally the burner appears similar to others in the arrangement of its parts. A motor drives the pumping devices by direct coupling through a fan housing which is in conventional relation to the blast tube.

The metering pump, which serves only to regulate the gph rate, and the air compressor are a single unit driven at motor speed. The air and oil are kept separated in pumping by a rotary shaft seal in the center of the unit.

The metering pump is a development of the type described in a previous article. A rotor contains a set of pistons and switches them from supply ports to discharge ports. The amount of stroke of the pistons governs the quantity of oil delivered to the nozzle.

A positioning eccentric is used to control the stroke of the pistons. This eccentric is connected by a shaft to an external control lever just outside the end of the housing, so that the movement of the lever adjusts the size of the flame. This control method makes possible automatic changes in the fire when the load varies.

Like other metering pumps, although of the positive displacement type, this pump must be supplied by gravity. An inside tank usually is installed at a level considerably higher than the pump. A wall pump or a circulating pump must be used with an outside tank.

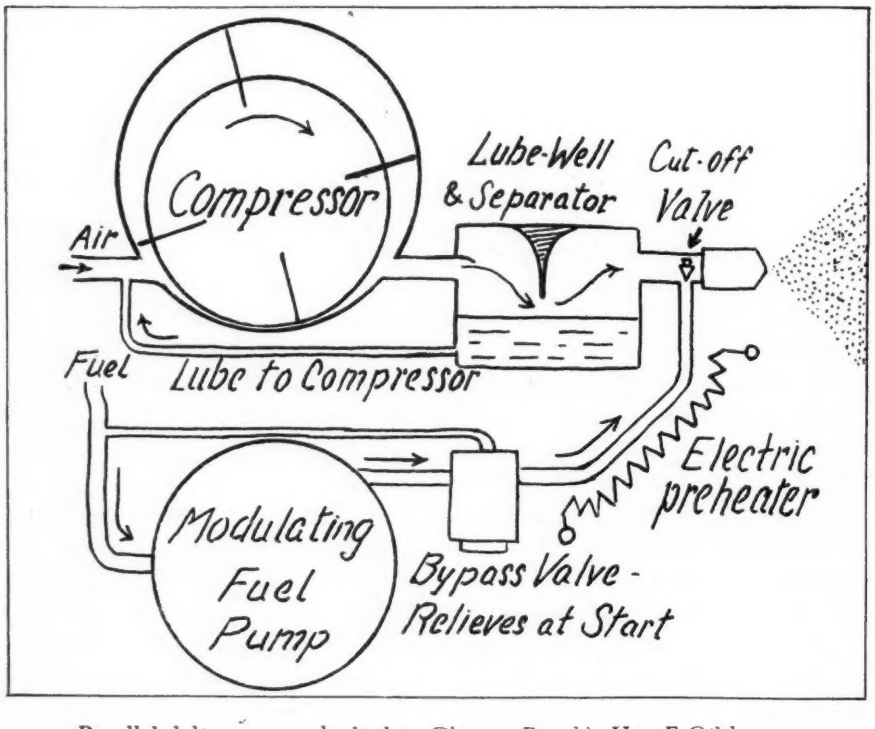
The compressor is the multi-vaned continuous process type used in other lower pressure burners. Because there is no fueloil in the compressor of this burner, a separate lubricating system is provided. This consists of a well situated in the base of the burner which is kept under pressure during operation by the nozzle air, which passes through the upper part of the chamber. The pressure in the well forces the lubricant through a tube to the inlet side of the compressor. The oil is returned to the well through the same tube which carries the pressurized air. It is separated from the air by a bronze wool filter which also serves to keep the nozzle-air clean.

From the chamber above the lubricating well the air passes under pressure to the nozzle. At the point where it enters the drawer, or nozzle assembly, its pressure is applied to a diaphragm which is attached to a rod extending through the air tube to a point just back of the nozzle. This rod operates the oil inlet valve which opens at about 6 lbs. air pressure.

The oil from the metering pump enters a tube just beneath the air tube. At the oil inlet valve the air and oil tubes come together. The air and oil meet for the first time in their travel through the burner and enter the nozzle together.

The nozzle is the standard low pressure type. Its core contains slanted slots through which the mixture is delivered into the whirl chamber at a high rate of speed, causing a cone-shaped spray.

(Continued on page 160)




*Parallel delivery as embodied in Cleaver Brook's Hev-E-Oil burner.*

# Selecting Proper Gph Rate

**fueloil & oil heat**
**Short Short Article on Burner Service**

THE HEADACHES STARTED, says this burner service man, when an architect told him to fire a new boiler at the proper gph rate.

The boiler was rated by its manufacturer for maximum net or standing loads of 1300 sq. ft. of steam radiation, and 2080 sq. ft. of hot water radiation. Its net output was given as 312,000 Btu per hour; gross output as 451,000 Btu per hour. The recommended maximum rate was 4.5 gph.

The service man had to find out how hard to fire the boiler for its 1800 sq. ft. of forced-circulation radiation.

At the plumbing and heating supply house he visited to get information, the proprietor gave this speedy answer, "Firing 4.5 gph equals a load of 2500 sq. ft. of standing hot water radiation, therefore for the 1800 sq. ft. load fire 18/25 of 4.5 gph, or fire about 3.25 gph.

Here's how it figures that 2500 sq. ft. of hot water radiation equals 4.5 gph. Multiply the 2500 sq. ft. by 150, the number of Btu's per hour for one square foot of hot water radiation, and you get 375,000 as the net Btu load on the boiler. Add 20% for piping and pick-up and you get 450,000 Btu per hour as the gross or nozzle output load on the boiler. At 70% efficiency one gph gives the boiler about 100,000 Btu per hour; 70% efficiency times 140,000, the rough Btu heat content of one gallon of oil, gives about 100,000 available Btu per gph fired. So you divide the gross boiler load, 450,000 Btu, by 100,000 and obtain 4.5 gph as the rate for 2500 sq. ft. of hot water standing radiation."

The service man started to leave the supply house with the intention of firing the job at 3.25 gph, but was stopped by a manufacturer's salesman who had been listening.

"I can't let you get away with the wrong idea about that boiler," said the salesman, "because you are heading for trouble. The fact is that your boiler is badly overloaded and can't carry the 1800 sq. ft. standing load even when fired at its maximum rate of 4.5 gph.

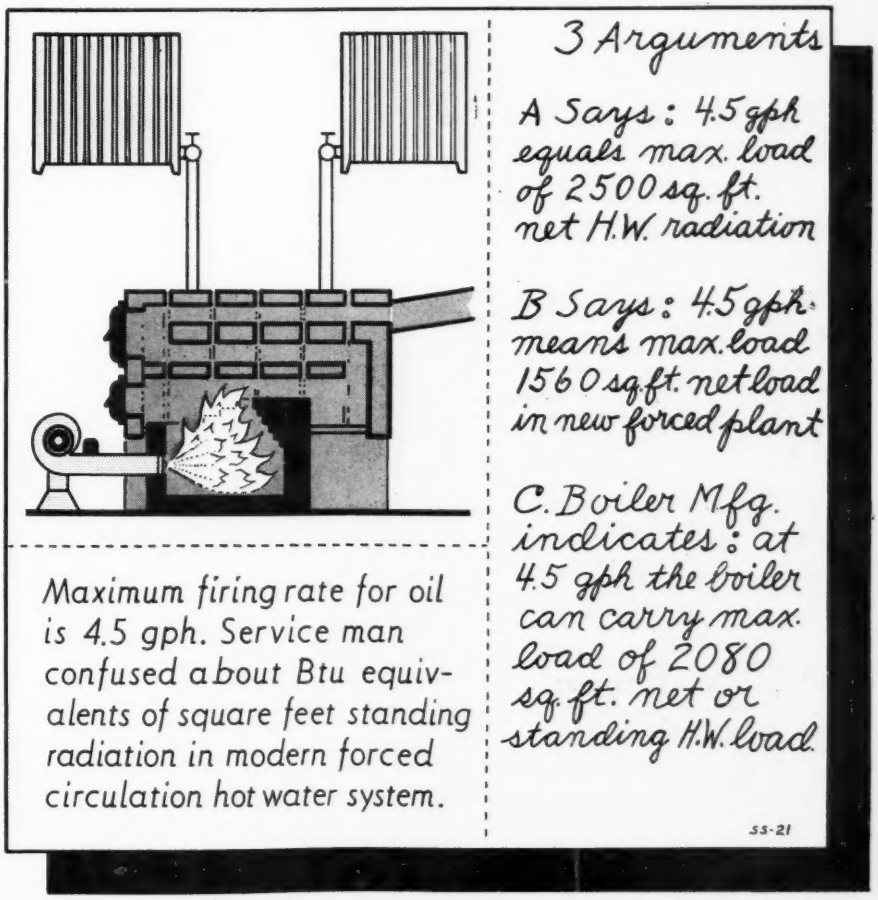
"I figured it out for you this way," the salesman went on. "I figure the radiators in a modern, forced hot water plant are 20% larger than steam size, or 25% smaller than would be used with gravity-circulation hot water heating. To get steam radiator sizes, divide a room's heat losses by 240. But divide by 200 to get radiator sizes in a modern forced-circulation system, and by 150 to get sizes for gravity-circulation hot water.

"You've got a forced load of 1800 sq. ft., net basis, and I say the boiler can't carry it," explained the salesman, "because the boiler manufacturer lists the boiler good for a maximum net load of 2080 sq. ft. of gravity-circulation radiation. Convert the 2080 to terms of forced-circulation by deducting 25% from it. That makes the boiler good for only 1560 sq. ft. net load in a modern forced system."

The salesman proved the manufacturer's net rating of 2080 sq. ft. of hot water radiation was in terms of old-fashioned gravity-circulation radiation; he added 60% to the steam rating of 1300 sq. ft. and obtained 2080 sq. ft. in new forced systems, he said, the radiators are not 60% larger than steam size.

Addressing both the salesman and the supply house owner, the service man exclaimed, "So figures can prove anything! One of you says 3.25 gph will walk away with this load, the other says the boiler is overloaded and can't carry the load when fired at its maximum of 4.5 gph. What do I do now? Now you two fellows will please agree and give me the one answer that's correct!"

"Okay, here's the lowdown," the supply house man said reluctantly. "We figured that house before it was built, and 1100 sq. ft. of standing steam radiation is plenty. I did not want to point it out earlier, but the old-timer who sold the heating plant stubbornly sticks to hot water radiators 60% larger than steam size even though he uses forced-circulation and oil firing. He plays safe. Too safe. That's how I knew that 3.25 gph would carry the load easily. I simply gave you a common sense answer. I even forgot the tankless water heater purposely."


3 Arguments
A Says: 4.5 gph equals max. load of 2500 sq. ft. net H.W. radiation
B Says: 4.5 gph means max. load 1560 sq ft. net load in new forced plant
C. Boiler Mfg. indicates: at 4.5 gph the boiler can carry max. load of 2080 sq. ft. net or standing H.W. load.
Maximum firing rate for oil is 4.5 gph. Service man confused about Btu equivalents of square feet standing radiation in modern forced circulation hot water system.
55-21

# Draft Control Test Methods

## Data Useful only when Taken with Units under Fire

by
E. A. Field

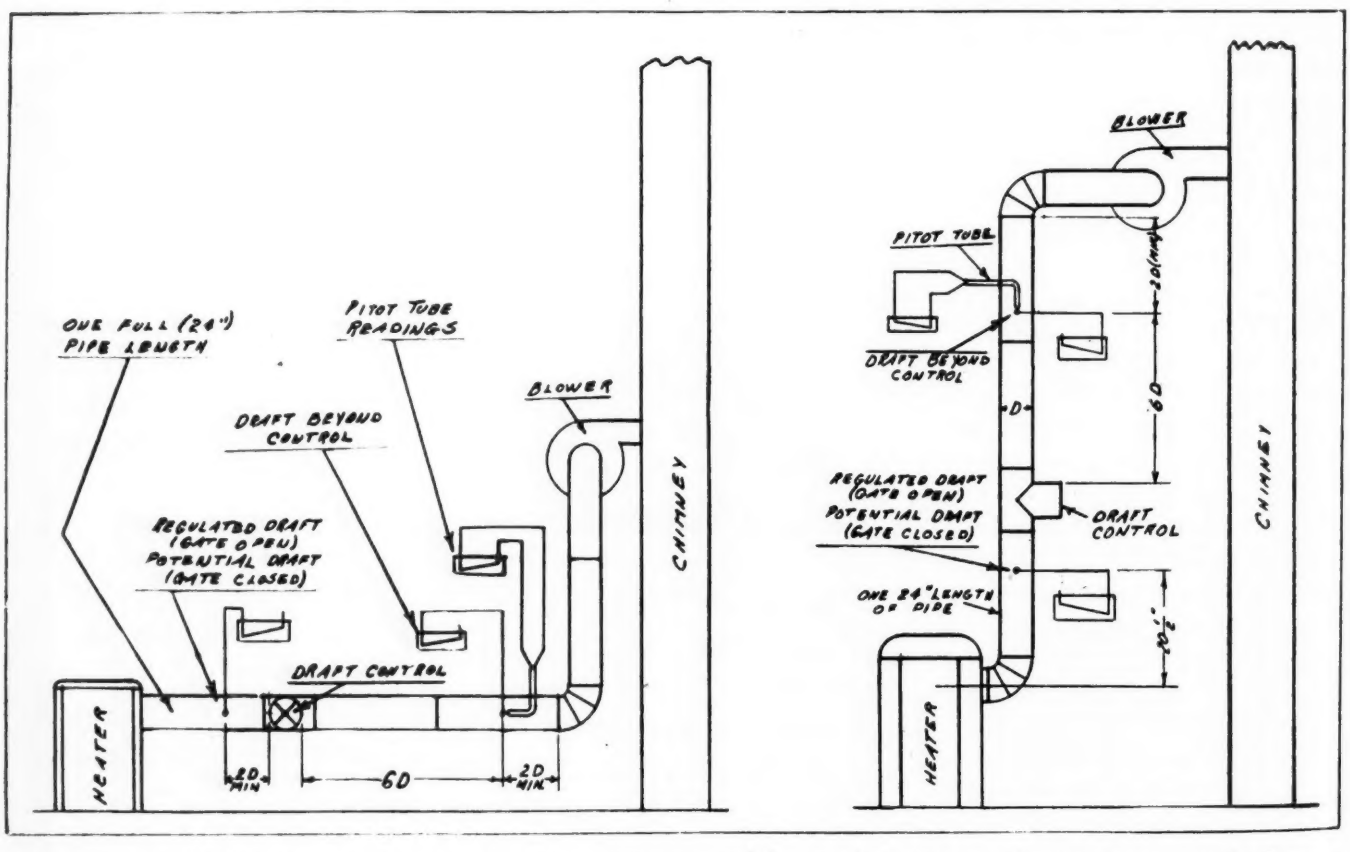
WHEN comparing the performance of one draft regulator with another, the only correct or true test is with the draft control installed on the flue pipe of a heating plant *which is in operation.* A draft control regulates the draft not alone by admitting air to increase the volume of gases (thus retarding the flow), but in addition the air admitted through the control cools the gases in the chimney so that less draft is developed in the chimney. Also, when a draft control is attached to the side of a flue pipe, the draft is checked to some extent by the turbulence created in the flue by the flow of air passing more or less across the flue pipe. Unless considerable care is used in setting up for a test, the results will be meaningless. For instance, based upon experience, it is known that controls could be designed which would regulate perfectly if attached to almost any kind of special demonstration equipment, but such regulators perhaps would be worthless when installed on a heating plant.

If a test is conducted without using a heating plant in operation, the cooling effect of the air passing through the control, which normally would reduce the draft developed in the chimney, is not present with such a set-up. Again, the volume of gases flowing in the flue pipe should be approximately that which would be found with the average heating plant. If the heating plant were not in operation or if there were no flow of gases whatever in the flue pipe, the design of the draft control would have to be modified if the performance were to have the appearance of being good. But such a control would be of no value, since it would not operate properly when installed on a conventional heating plant.

To be strictly correct, draft control tests probably should be conducted with the heating plant connected into a natural draft chimney of average dimensions, but as tests under such conditions would require considerable time, since it would be necessary to wait until both windy and calm days had arrived, usually a blower is used to create drafts. Many laboratories are equipped with blowers for this purpose, and in this way it is possible to create any desired draft even in warm weather when drafts normally are poor. But such blowers are of all sizes and types, and as the duct work connected to them may differ considerably, comparisons of results in one laboratory with those in another often are rather difficult to make.

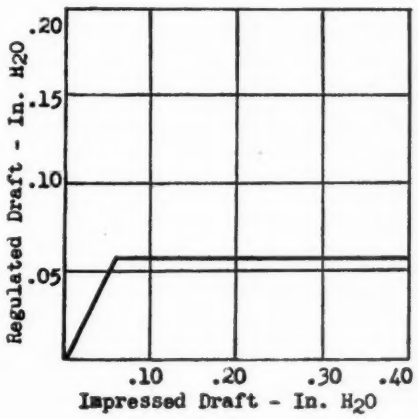
### A Common Method for Testing

Perhaps the most common method for testing draft controls is as follows: A heating unit is connected to the inlet




*The sketch on the left shows the horizontal pipe arrangement used for standard testing and rating barometric draft regulators. Vertical pipe arrangement for the same purpose is illustrated in the sketch on the right.*

of a blower by means of a few lengths of flue pipe. A draft control is attached to the pipe (with at least one length of pipe between the control and the heater, to avoid turbulence where the draft readings are to be taken) and an internal damper installed near the inlet of the blower. With the heater under fire, the internal damper is opened by certain increments, and draft readings are taken on the heater side of the draft control. In addition, at each setting of the damper, the gate of the draft control




*Curve of ideal draft regulation.*

is held closed for a minute or two and a second draft reading taken. The latter readings are referred to by several terms, such as "unregulated draft," "potential draft," "impressed draft," etc. Such readings are supposed to represent the draft which would prevail if no control were in service and therefore, it is thought that they indicate to what extent the draft control is able to offset or correct for extreme draft or weather conditions.

Since the sizes and characteristics of the blowers used for such purposes differ considerably, comparisons between the potential drafts obtained in one laboratory may not be the same as those obtained in another laboratory, as already mentioned. However, they are useful in comparing one test with another in the same laboratory.

### Second Testing Method

The test method used in some laboratories is to set up the heating unit in the same manner as previously described, but to take draft readings on the heater side of the regulator, *and on the blower side*. Draft readings on the blower side naturally will be higher in most cases. Probably it would be best to take such readings far enough away from the draft control to avoid the turbulent condition in the flue pipe caused by the air passing through the control. Therefore, such readings should be at a distance of at least 6 pipe diameters beyond the draft control, with no elbows or turns in the duct work between the draft control and this location.

### Typical Test Set-Ups

The recommended set-ups for conducting tests with both vertical and horizontal flue pipes are shown on the accompanying sketches. With these, it is possible to obtain the "regulated draft," the "impressed draft" (draft with control closed), or if desired, the "draft beyond the control" (with control operating) can be obtained, and the velocity of the gases beyond the control, if the latter also is desired.

### Maximum Potential Draft

With any method that is used to test a control, some discretion must be used when deciding what maximum impressed draft should be supplied, under which the draft control should still function correctly, that is, should still maintain the draft for which it is set.

### Test In Position Control Is Used

In most cases, space heaters, either oil or coal fired, usually have vertical flue pipes and consequently draft controls designed for such equipment probably should give their best performance when installed on vertical flues. It is possible to provide some means to compensate for a change from a vertical flue to a horizontal flue, but it is seldom possible to give quite the same degree of accurate regulation with both types of installations, there being a little better performance with one than the other. Therefore, when testing a draft control, it should be installed in the manner that corresponds more closely to that which will prevail in the majority of installations. With central heating plants, such as furnaces or boilers, in probably nine-tenths of the installations the draft control will be attached to a horizontal flue pipe, and consequently controls intended for use on such heating plants are designed with this in mind and should be so tested. This does not mean that they will not operate satisfactorily on other types of installations, but care should be given that, where some means is provided to compensate for the change from horizontal to vertical, or vice versa, that such means (such as a compensator screw, etc.) is used.

### Soot Allowance

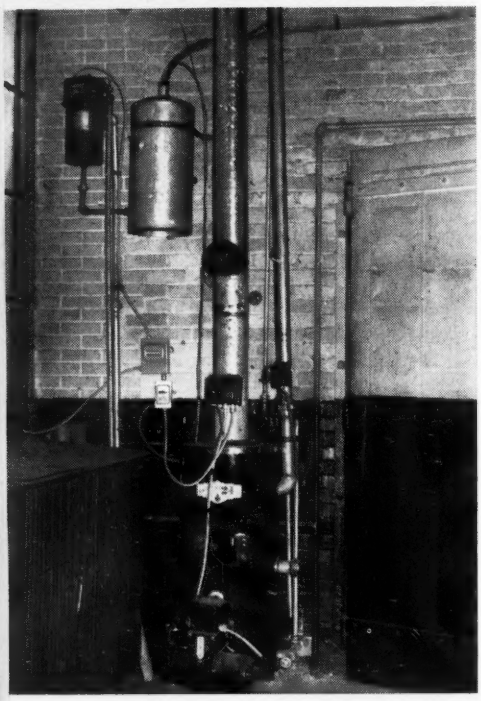
With the 9" and larger Field controls, an allowance is made when balancing the gates so that if the unit is installed on a coal fired plant, any slight accumulation of soot will not affect the performance of the control. A slight off-balance should be provided on the assembly line which compensates for a small amount of soot. But where other fuels are used and there is little chance that soot will accumulate, the compensator bolt, which is supplied with each control, should be inserted at the time of installation in a hole in the gate for this purpose, thus restoring the balance of the gate. When a performance test is made, the compensator bolt should *always* be used, since it provides the correct balance for the gate, such as would be the case even with coal after a moderate length of service on a heating plant.

### What Is Good Performance?

If the performance of a draft control is shown graphically by plotting the regulated draft readings against the potential draft (or perhaps against the draft in the flue beyond the control), the curve (or curves) should be essentially a straight line, regardless of the amount that the gate may have to open to provide such results. Also, when the potential draft is less than the setting on the control, the gate should *not* open until the draft again rises above the setting of the regulator. Naturally, when there is a deficiency of draft, the control should in no way reduce whatever draft may be available. Drawing shows an ideal regulation curve. Actually, perfect regulation cannot be obtained, but the closer to the ideal, the better.

◈

*H. W. MacIntosh,* in charge of purchasing and stores control for the past twenty-nine years, has advanced to the position of treasurer, L. O. Koven & Bro., Inc., Jersey City 7, N. J. He will continue his previous activities.



# Little Units—Big Job

## Multiple Furnace Installation Heats Garage

WHEN Grieger Chevrolet Co., Muncie, Ind., wanted to expand, problems popped up faster than solutions. Besides the task of getting materials to build the addition to the showroom and shop, the boiler plant was old and limping, and totally incapable of carrying any additional new load.

There was 26,400 square feet of floor area; a shop with a calculated heat loss of 1,977,640 Btu per hour and the offices and showroom figured to 554,600 Btu, a total of 2,532,240 Btu per hour. Huge doors open and close throughout the day to admit cars and trucks to the shop area, and light requirements make large glass areas necessary.

About the time the problem seemed insurmountable, Lehman Electric & Heating Company entered the picture, and recommended that the boiler and ten big unit heaters be scrapped. In place of the old heating plant they recommended 17 H.C. Little oilfired ceiling furnaces for the shop, three Little floor level furnace-burner units for the offices and showroom, and a small boiler to heat the paint shop, where no heating plant can be operated, and it is not desirable to recirculate air. Not only did Lehman make the recommendations, but they sold and also made the installation.

The suspended ceiling units are each self-contained oilfired furnaces complete with blowers and individual stacks. The units are designated as CF-140 H.C. Little ceiling furnaces.

Units are suspended from the steel trusses and girders with 2 x 2½ in. angle iron and 9/16 in. steel rods. The rods are double nutted for safety. Ceiling units are so placed that the warm air discharge will blanket the cold walls and known cold and hard to heat areas.

Individual stacks, each carrying its own draft regulator, are made of 8-in. 24 gauge smoke pipe and 10-in. 24 gauge pipe, one inside the other to form a double pipe. The outer 10-in. pipe is sealed against the 8-in. pipe at the top and bottom, leaving a dead air space between the two. These stacks are about 14 feet long, and extend above the roof higher than surrounding obstructions. Each stack is topped with a cap. A flashing collar was made for each stack, both inside and outside the roof, and sealed with roofing cement to make it weatherproof.

Oil for these units is stored in three 1000-gallon tanks buried along an outside wall of the building. There are seven units that get their fuel from each tank.

Oil is pumped twice for each burner. A Teesdale Model TUX wall pump lifts oil from each of the buried tanks to a 12-gallon tank located 10 feet up the side wall. From these reservoirs individual Automatic Products oil lifters at each burner unit pull fuel for its burner through a ⅜ in. copper tube as required. There is a shut-off valve at each AP pump. More than 2000 feet of copper tubing was used on the job.

**Shop views** *of multiple ceiling furnace installation. At top, the floor mounted furnace warms the parts department and general office. Center, the boiler installation that heats the paint shop. At left, a general view of the shop, showing several of the ceiling suspended H. C. Little units.*

Though the total cost of this heating job was less than the estimate for a boiler of proper size, unit heaters and radiation, there are other considerations the company believes more important. It gives automatic zoned heat since each unit operates according to the demand of its own thermostat to warm its own area. The noise level is very much lower than when unit heaters were used, and the system allows for any amount of expansion simply by adding another ceiling unit or two as required.

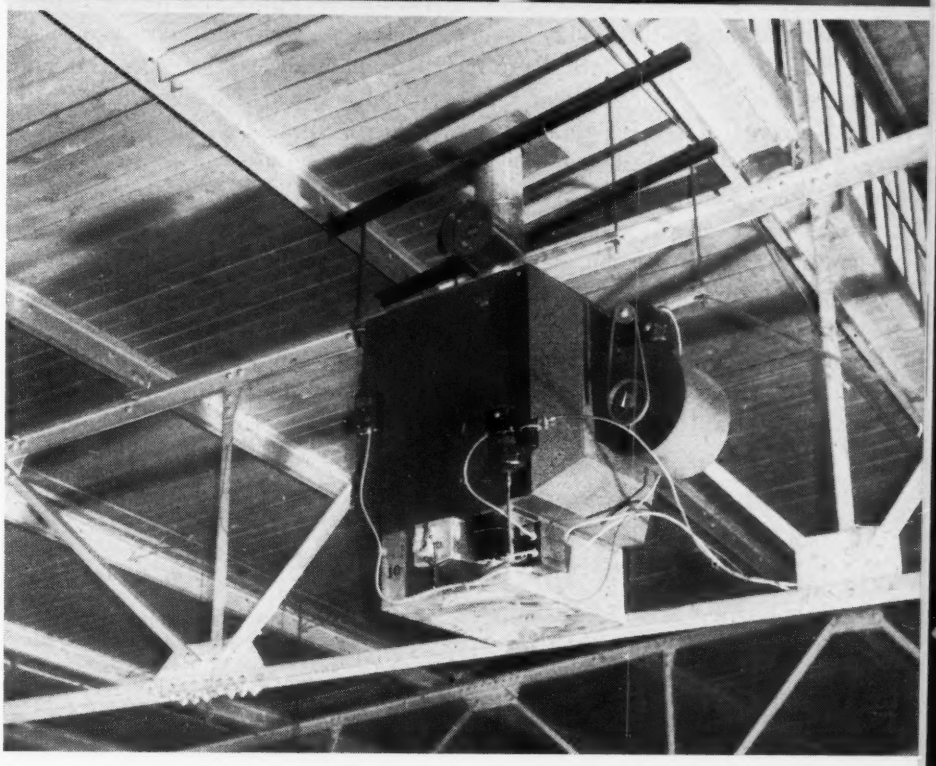
It is pointed out that seldom if ever will all units be operating at the same time, since each furnace supplies the heat requirements of its section and cuts off when its thermostat is satisfied. If units should fail at any time the others in operation would carry enough of the total load to avoid any real discomfort.

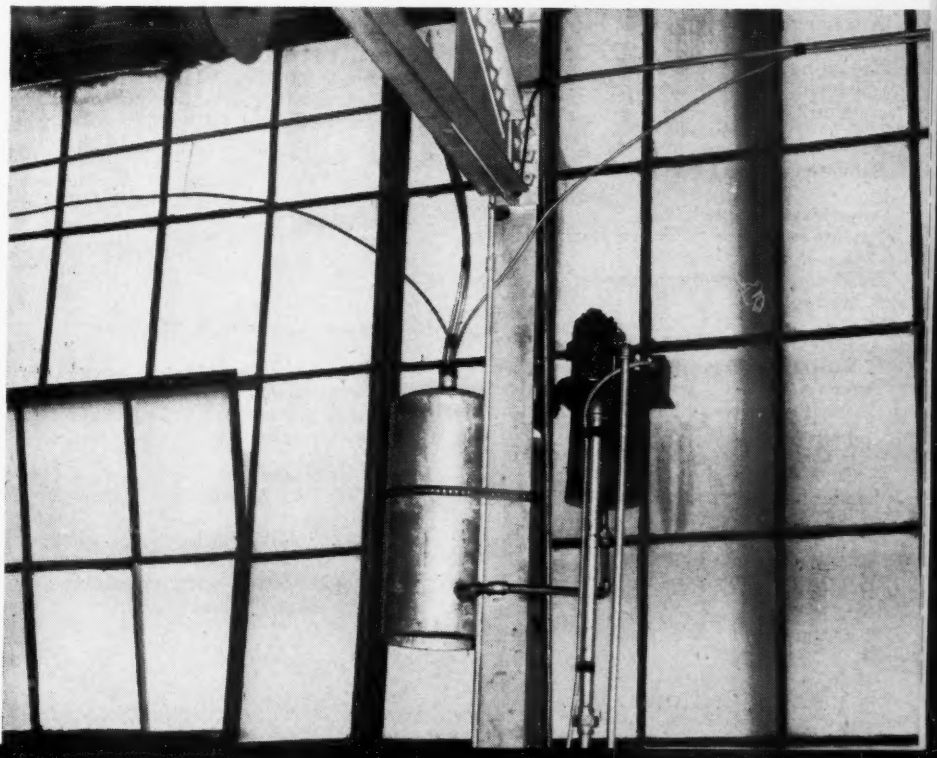
Ceiling units are placed to throw a blanket of warm air over all cold surfaces and heat the cooler areas in the shop. Warm air is directed toward all doors and along all large glass areas. Quick cooling due to opening doors in mid-winter to admit cars and trucks is quickly compensated by the units that direct their heated air toward those doors, and into the area around the doors.

Each ceiling furnace unit is electrically ignited, and is completely off when the thermostat is not calling for heat in its zone or area. It is claimed that the elimination of the usual oil pilot on this type of burner will save fuel.

The seventeen ceiling-suspended units heat the shop area, but one A-UC Hi-Boy furnace-burner unit and two DU-46 CIBL floor level furnace units were selected for supplying heat to the general offices and parts department.

Heat loss for the shop, totaling 1,977,600 Btu was calculated at 75 degree temperature difference, and the loss from offices and showroom was figured at 80 degree difference.





**At the top,** *a view of the roof showing some of the individual stacks that are connected to each unit. Center, a close-up of one unit, showing the thermostat and the open burner compartment. At the right, the detail of one of three Teesdale wall pump installations, each of which takes oil out of a 1000-gal. buried tank to supply seven furnace units.*

# Timely Sessions and Exhibits To Feature OHI Convention

FINAL PREPARATIONS have been completed by Oil-Heat Institute of America, Inc., New York 16, N. Y., for its 26th Annual Convention and National Oil Heat Exposition to be held in Boston May 16 through May 20. Convention sessions are to be held at the Hotel Statler and equipment exhibits will be located in Mechanics' Hall.

Indications point to one of the finest and largest shows and for a series of Convention sessions that will be notable for the importance and timeliness of the subjects discussed by competent speakers. Response of manufacturers to exhibit and dealer and distributor personnel to attend point to a wide appreciation of the value of participating in the Convention and Exposition.

Opening at 7:00 P.M. on May 16, the exhibits at Mechanics' Hall will be open from 1:00 P.M. to 10:30 P.M. on the next two days and will close at 5:00 P.M. on Thursday, May 19, to permit attendance at the annual banquet. On the last day, May 20, exhibits again will be open from 1:00 to 5:00 P.M.

Arrangements have been made to broadcast the opening ceremonies at Mechanics' Hall, with Massachusetts State officials participating. Following the custom of recent years, a press conference on the opening day will be attended by representatives of national consumer magazines, Boston newspapers, national wire services and radio stations. Press headquarters are to be maintained at Mechanics' Hall.

Convinced that it is up against a buyers' market, the oilburning industry approaches the opening of the show with increased interest. Particularly for the Dealer Day Session, May 19, subjects of speakers have been selected to emphasize the importance and techniques of selling and meeting of competition from other fuels.

## List of Exhibitors*
## NATIONAL OIL HEAT EXPOSITION
### Mechanics' Hall—Boston
### May 16-20, 1949

*Space No.*

**A & C Sales & Supply Co.** (123)
Attending: Edward A. Washak, Edward F. Sheehan, James J. Kurker.
Exhibiting: Everhot all-copper tankless heater.

**Aldrich Co.** (518)
Attending: P. J. Stephenson, Barney Mulder, E. L. Fox and factory representatives.
Exhibiting: New model CX oilburner, new Bantam oilfired boiler, series B boilers and oilburners.

**American Artisan** (375)
Exhibiting: Publication.

**American Mohawk Co.** (525)
Attending: Harry A. Toker, Harry S. Londa, Jack Polisner.
Exhibiting: Conversion pressure type oilburners.

**American Radiator & Standard Sanitary Corp.** (624)
Attending: H. C. Day, Wilbur Senft, Lincoln Pierce, Nelse Hervan, R. A. Houslev, S. B. Graeff, M. I. Kischler, R. D. Rich, J. J. Cronin, F. J. McGrath, D. T. Hastie, G. V. Gushue, Jr.
Exhibiting: Cutaway models of the Oakmont and Arcoliner Wet Base boilers and the new Winterglo winter air conditioning unit, all Arcoflame gun type burners installed.

**American Stove Co.** (312)
Attending: J. M. Bayer, C. B. Tozer, C. L. Wessel.
Exhibiting: Quick Heat vaporizing burner, furnaces, gravity and winter air conditioning units for central heating.

**Applied Mechanics Co.** (351)
Attending: H. J. G. Rudolf, Burt Power.
Exhibiting: Galongage and Fil-Thru tank gauges.

**Auto-Heat Corp.** (319)

**Bacharach Industrial Instrument Co.** (656)
Attending: H. B. Nunnally, John W. Smith.
Exhibiting: FYRITE combustion kits, TEMPSCRIBE recorders, FloRite direct reading velocity meter and TRUE-SPOT smoke tester.

**Bell & Gossett Co.** (610)
Attending: R. E. Moore, R. A. Patterson, Frank C. Hackett, Phil Wiswall, Jack Hanley, Kenneth Sprague, Robert Ripley, J. A. Ivester.
Exhibiting: B & G Hydro-Flo heating specialties.

**Bethlehem Foundry & Machine Co.** (688)
Attending: Clarence S. Dieter, Larry Hodge, Raymond Dietz.
Exhibiting: Dynatherm boiler-burner units, conversion oilburners.

**Brown Products Co.** (359)
Attending: A. Brown, W. Flickinger, G. Brink.
Exhibiting: Boiler-burner units, domestic water heaters, Bayce-Heet baseboard radiators, unit heaters, water circulator.

**Catskill Metal Works, Inc.** (511)
Attending: T. L. Seaman, Ed Gardner, Ernest F. Karbe, James McCauley.
Exhibiting: Conversion oilburners.

**Century Engineering Corp.** (580)
Attending: R. P. Nessler, B. J. Lattner, E. R. Dexter, C. P. Taber, A. H. Mellott.
Exhibiting: Oilburners, boiler and furnace-burner units, water heaters, gas furnaces.

**Cities Service Oil Co.** (570)
Attending: R. J. Borden, J. L. Gamble, J. B. Crawford, D. W. Solis.
Exhibiting: Oilburners, industrial and domestic Heat Provers (flue gas analyzers).

**Cole Sewell Engineering Co.** (550)
Attending: I. E. Loring, H. J. Sewell.
Exhibiting: Draft governors and Korektors.

**Commercial Filters Co.** (760)
Attending: E. W. Sherburne, E. W. Dumler, J. R. Chisholm.
Exhibiting: Fulflo oilburner filters, Honeycomb filter tubes, filters for use on fueloil trucks, dispensing pumps and bulk loading plants.

**Crotty Mfg. Corp.** (231)
Attending: Michael C. Crotty, Alex C. Hart, Ralph Sibilla.
Exhibiting: Domestic steel heating boilers, water wall extension furnaces.

**Delavan Engineering Co.** (765)
Attending: Nelson B. Delavan, Eugene O. Olsen, H. L. McNally.
Exhibiting: Delavan-Balloffet design nozzles and accessories, serviceman's kit, inspection mirrors, Adaptraps, sludge solvent.

**Delco Appliance Div., General Motors Corp.** (458)
Attending: Paul H. Rutherford, A. C. Freiman, Julian A. Warren, A. R. Mann, E. N. Pease, P. E. Carlson, P. Slattery, N. J. O'Brien, Warren K. Underkoffler.
Exhibiting: Delco-Heat line of conversion oilburners, boiler-burner units and Conditionaire furnace units.

**Delco Products Div., General Motors Corp.** (758)
Attending: J. N. Tilbrook, S. A. Bratten, J. R. Lakin, L. C. Bond, C. L. Holverstott, P. W. Kronauge, J. R. Perkins, S. W. Blanton.
Exhibiting: Oilburner and blower motors.

**Detroit Lubricator Co.** (413)
Attending: W. H. Hohmeyer, H. L. Walker, N. L. Sell, R. M. Bard.
Exhibiting: Control equipment for pressure and vaporizing oilburners.

**Dewey-Shepard Boiler Co., Inc.** (207)
Attending: George D. Arnold, Robert B. Rhoads.
Exhibiting: Oilfired steel boilers and water heaters, vertical and horizontal models.

**Dielectric Products Co., Inc.** (763)
Attending: Henry T. Carey, Phil Krueger.
Exhibiting: Ignition electrode and high tension cable assemblies, bus bars.

**Dole Valve Co.** (418)
Attending: T. G. Colter, P. H. Rimbach, H. Aronson, W. R. Wallin, J. F. Lund.
Exhibiting: Thermostatic automatic register, new No. 20 automatic hot water air valve, air and vacuum valves, water mixers.

*As of April 26.

**Domestic Engineering Co.** (465)
Exhibiting: Publication.

**Dongan Electric Mfg. Co.** (764)

**Dualflame Co.** (127)
Attending: S. Kamin, J. A. Howenstine, T. O. Warfield, Freeland L. Jennings.
Exhibiting: Dual burner system heating both home and domestic water, Unitized burner system for single or dual purpose, Synchronizer firing head.

**Duo-Therm Div.** (218)
Attending: R. H. Reeder, E. M. Crary, A. R. Frantz, J. H. Kennedy, T. Valjean, G. W. Phillips.
Exhibiting: Oilburning water heaters, space heaters, furnaces.

**Eckhart Mfg. Co.** (560)
Attending: Arnold Eckhart, Jr., Walter E. Eckhart, Arthur E. Wood.
Exhibiting: Oilburners, featuring model SR-C with Monitor head assembly.

**Eddington Metal Specialty Co.** (565)
Attending: Walter V. Czarnecki, Jr., Casimer M. Czarnecki, Stanley Czarnecki, Wesley Czarnecki.
Exhibiting: Oil filters, pipe line strainers, spray nozzles, flexible inspection mirrors, air cones and stabilizers, pressure regulating valves.

**Electrol Burner Mfg. Co., Inc.** (113)
Attending: R. F. Andler, L. A. Schultz, L. W. Schroeder.
Exhibiting: Conversion oilburners, water heaters, air conditioners.

**Fairbanks, Morse & Co.** (768)
Attending: F. J. Lleumpers, Raymond Harnetiaux, Harold Neal, distributor and dealer representatives.
Exhibiting: New conversion oilburner, new packaged oilfired furnace, new suspended type oil furnace, new oilfired boiler and a cutaway display of an oilfired boiler.

**Federal Boiler Co., Inc.** (757)
Attending: James H. Legg, Raymond H. Bohr, Raymond Shuster, Herbert Varney, Robert Varney.
Exhibiting: FC and FV series boilers.

**Field Control Div.** (377)
Attending: C. W. Potter, James Burch, Fay Kinne, Warren Hulke, and other manufacturers' representatives.
Exhibiting: Barometric controls, fuel saving systems, safety control, Scotty Field control.

**Fiske Products, Inc.** (310)
Attending: E. R. Fiske, W. S. MacKenzie, R. R. Young.
Exhibiting: Oilburners and boiler-burner units.

**Fitzgibbons Boiler Co., Inc.** (564)
Attending: Paul K. Addams, Gustav E. Olsen, John R. Collette, Gilbert Nelligann.
Exhibiting: "400" and "80" series and RZU Jr. line of boilers, Directaire conditioning units.

**Fluid Heat Division** (476)
Attending: M. J. Donahue, D. Grey Knowles, A. E. McAvoy, F. J. Williams, H. E. Johnston, R. E. Miller, E. F. Long.
Exhibiting: Furnace and boiler-burner units, pressure and rotary conversion oilburners.

**Fram Corp.** (790)
Attending: E. L. Sandberg, Milton Phillips.
Exhibiting: New models F1210, F1211 and

# Program

## Exposition: Mechanics' Hall—All Meetings: Hotel Statler

### MONDAY, MAY 16, "INSTITUTE DAY"

9:00 A.M. — Retiring Board Meeting, Distribution Division.
10:00 A.M. — Retiring OHI Board Meeting.
1:30 P.M. —Annual Meeting—Accessory Division, J. W. Owens, Chairman.
1:30 P.M. —Annual Meeting—Distribution Division, J. A. Collins, Chairman.
6:30 P.M. —Mechanics Hall—Opening Ceremony.
7:00 P.M. — Mechanics' Hall — Exposition Opens.
10:30 P.M. — Exposition Closes.

### TUESDAY, MAY 17, "LADIES' DAY"

10:00 A.M.—Annual Meeting—OHI of America, R. S. Bohn, Chairman.
12:30 P.M. — New OHI Board Luncheon Meeting.
1:00 P.M. — Mechanics' Hall — Exposition Opens.
2:30 P.M. —New Board Meeting, Dist. Div.
3:30 P.M. — Ladies' Reception.
10:30 P.M. — Exposition Closes.

### WEDNESDAY, MAY 18, "BURNING OILS INDUSTRY DAY"

9:30 A.M. — Burning Oils Industry Session — R. S. Bohn, Chairman.
Speakers: Dr. W. C. Schroeder, Chief, Office of Synthetic Liquid Fuels, Bureau of Mines, U. S. Dept. of Interior.
*"Heating Oils from Petroleum Coal & Shale"*
W. A. Matheson, director, Eureka Williams Corp., representing manufacturers and
J. E. Horton, president, Horton Htg. Corp., representing distributors, in a
*"Symposium of Industry Problems"*
9:45 A.M.—Ladies' Entertainment until 4:00 P.M.
1:00 P.M. — Mechanics' Hall — Exposition Opens.
10:30 P.M. — Exposition Closes.

### THURSDAY, MAY 19, "DEALER DAY"

9:30 A.M. — Dealer Day Session — J. A. Collins, Chairman.
Speakers: Dr. Courtney Brown, assistant head, Coordination Economics Dept., and head, Petroleum Economics Div., Standard Oil Oil Co. (N. J.).
*"Characteristics of Burning Oil Market"*
A. S. Kozman, manager, Cook's Oil Co.
*"Competition in Automatic Heating"*
D. A. Packard, sales manager, Kelvinator Div., Nash Kelvinator Corp.
*"The Art of Specialty Selling"*
1:00 P.M. — Mechanics' Hall — Exposition Opens.
5:00 P.M. — Exposition closes.
6:30 P.M. —Industry cocktail hour—Hotel Statler.
7:30 P.M. —Annual Banquet, entertainment and dance—Hotel Statler—
C. R. Collins, Toastmaster.

### FRIDAY, MAY 20, "ARCHITECTS' AND ENGINEERING DAY"

10:00 A.M. — Architects' and Engineering Day Session — Frank Faust, chairman.
Speakers: Henry Wright, architect and consulting engineer.
*"Recent Progress in Heating and Building Design"*
Forum: *"Lower Heating Costs from Burners or Heat Absorbing Vessels"*
Howard Earl, chief engineer, Williams Oil-O-Matic Div., Eureka Williams Corp.
Frank E. Mehrings, vice president in charge of sales, Meyer Furnace Corp.
L. N. Hunter, vice president in charge of research, National Radiator Co.
Gerald W. Bohn, vice president in charge of engineering, Preferred Utilities Mfg. Corp.
H. K. Ricker, sales engineer, Gilbert & Barker Mfg. Corp.
John B. Mathis, chief engineer, Quaker Mfg. Co.
1:00 P.M. — Mechanics' Hall — Exposition Opens.
5:00 P.M. — Exposition final closing.

F1212, present model F1203 oil filters and cartridges.

**Fuel Oil News** (788)
Exhibiting: Publication.

**Fueloil & Oil Heat** (430)
Attending: A. E. Coburn, Robert Gray, H. I. Dunphy, J. W. Schulz, A. G. Winkler, H. J. Hannigan, Lee Steedle, Marshall Beuick, Leod D. Becker.
Exhibiting: FUELOIL & OIL HEAT magazine; Beacon Boiler Reference Book, Selling Man, Basic Service Text for Pressure Oilburner, Oilheating Handbook, Reprint booklets: Better Oilheating, Low Pressure Burners, Installing the Domestic Oilburner, Heading Off Trouble, Oilheating Snags and oilheating market data.

**General Electric Co., Air Conditioning Dept.** (571)
Attending: H. M. Brundage, L. H. Hobson, F. N. Bennett, R. H. Weiser, A. C. Kretschmar, E. S. McKay, H. W. Pennington.
Exhibiting: Line of LA oilfired boilers, LB oilfired warm air furnaces.

**General Electric Co., Apparatus Dept.** (659)
Attending: C. J. Monroe, Frank Ondrovik, J. Coughlin, H. A. Beaudoin, R. D. Andrews, M. R. Christman.
Exhibiting: Fractional hp oilburner motors, SM ignition transformers, oilburner control transformers.

**General Filters, Inc.** (365)
Attending: A. D. Redner, Mrs. Grace Redner, Robert G. Gregory, Les Sheldon, Frank Gerlach.
Exhibiting: Three models of fueloil filters.

**General Fittings Co.** (513)
Attending: Horace F. Horton, John J. Cotter, Frank Johnson, Charles Maine, Jack Jones, Robert F. Hull.
Exhibiting: Indirect and tankless water heaters, combination expansion tank and tankless water heater.

**General Oil Burner Corp.** (487)
Attending: Robert E. Lee, H. F. Browning, Charles Hight, H. J. Hughes.
Exhibiting: General Automatic winter air conditioning units, steel boiler units, oilburners, "Floorline" baseboard radiation.

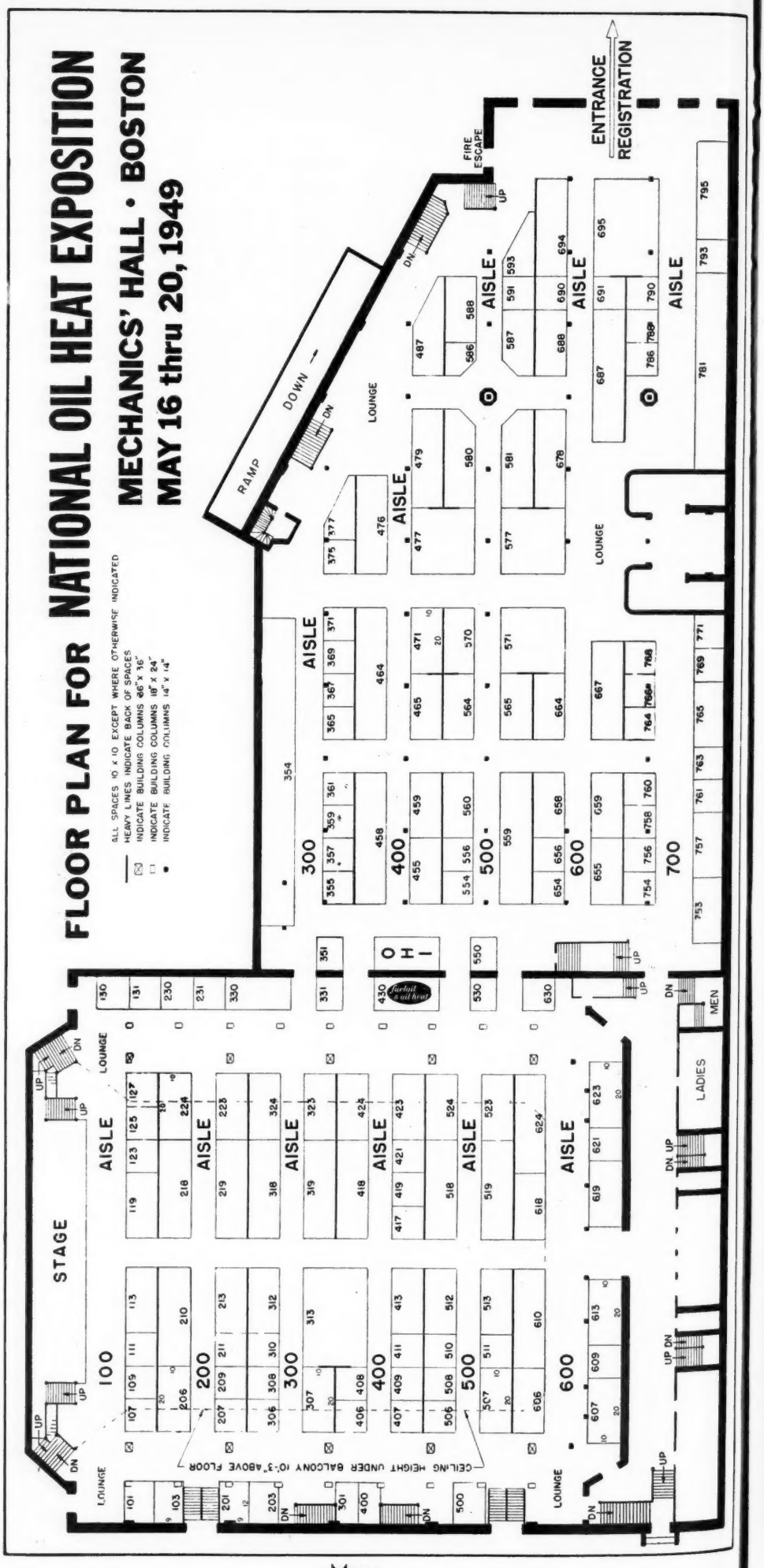
**General Oil Heating Corp.** (556)
Attending: William D. Brooks, William D. Brooks, Jr., A. G. Tichenor.
Exhibiting: Genoco oilburners.

**Guardian Products Corp.** (690)
Attending: H. L. Forgash, H. J. Prueter, R. O. Maldy.
Exhibiting: Flexible couplings, oil and oil tank installation valves.

**Gulf Oil Corp.** (324)
Attending: Personnel from Division Sales Offices.
Exhibiting: General data promoting the sale of oil heat and Gulf fueloils.

**Hajoca Corp.** (691)
Attending: S. Muir Stroh, W. R. Dodge, Jack Hanna.
Exhibiting: Conversion oilburners.

**Harbison-Walker Refractories Co.** (423)
Attending: P. B. Richardson, Frank Wilson, James Gifford, E. S. Stockslager, George Webster, R. C. Straka, Jr., H. S. Schweins-



berg, James Mitchell, Robert Highley, R. B. Jenner, J. E. O'Reilly, R. R. Miller.
Exhibiting: Castable refractories, plastic and insulating fire brick, castable refractory combustion chambers, a line of high alumina and basic refractories, fire clays and high temperature bonding mortars.

**Sid Harvey, Inc.** (753)
Attending: Sid Harvey, Lawrence Harvey, William C. Archer, Walter L. Bernard, Mathias Bernard, Joseph R. Ziminski.
Exhibiting: Samples of Harvey rebuilt line, conversion oilburner, modernizing packages.

**Harvey-Whipple, Inc.** (219)
Attending: Ray G. Whipple, Walter O. Harvey, T. A. Hodgdon, L. W. Shaw, William C. Dee, Charles S. Reynolds, Frederick W. Stierhoff, G. Howard Holcombs, T. M. Dailey.
Exhibiting: Master Kraft conversion oilburners from 1 to 25 gph, three sizes of Sun-Blaze boiler-burner units, four models of warm air conditioners.

**Heil Co.** (464)
Attending: John Barclay, Karll Mould, Roy King, F. F. Pugh, George E. Hochstein.
Exhibiting: Oil furnaces and burners, conversion oilburners.

**Herco Oil Burner Corp.** (530)
Attending: H. H. Wilkinson, Fred A. Wiker, Harry B. Rohrer.
Exhibiting: High pressure gun type burners.

**Hilken Htg. Co.** (419)

**Iron Fireman Mfg. Co.** (223)
Attending: H. M. Cutshaw, L. N. Zimmerman, Peter Storti, W. B. Calhoun, S. M. Wright, C. B. McKernon, R. F. Lunt.
Exhibiting: Convention and Vortex model, with vertical nozzle, conversion gun type oilburners, gun type industrial oilburners, horizontal rotary industrial oilburners, oilburners, oilfired boiler and furnace-burner units.

**Jackson & Church Co.** (459)
Attending: L. S. Redford, C. J. Low, R. J. Lanham, F. J. Hughes, Henry Nickerson, Sam Neide.
Exhibiting: Oilfired suspension units.

**Jefferson Electric Co.** (369)
Attending: C. T. Harnett.
Exhibiting: Line of oilburner ignition transformers.

**S. T. Johnson Co.** (795)
Attending: J. C. Johnson, Robert P. Johnston, L. W. Kline, W. Thoms, W. E. Lees.
Exhibiting: Conversion oilburners, combination oil and gas burners, oilfired boiler-burner units and water heaters.

**Johnson Heater Corp.** (471)

**Kent Co.** (371)
Attending: C. E. Clifford, J. W. Jones, G. F. Hill, L. L. Steele, R. W. Nevers, W. Kelly.
Exhibiting: Double suction furnace and boiler cleaner.

**Kresky Mfg. Co.** (417)
Attending: B. J. Carlson, Marshall Newcomb, Wesley Ricker, Sydney Bernstein, M. T. Gardner.
Exhibiting: Domestic and commercial range burners, Cottage, Junior, Master and Utility forced air furnaces, Pet and Economy gravity floor furnaces, Evenheat forced air floor furnace, storage water heater, new fireplace furnace and model WF wall furnace.

**Kresno-Stamm Mfg. Co.** (654)
Attending: B. I. Stamm, M. P. Holden, N. Fleisher, A. Brodsky.
Exhibiting: Vaporizing burners, Pow-R-Matic gun type burners.

**Master Plumber & Heating Contractor** (203)
Exhibiting: Publication.

**May Oil Burner Division** (664)
Attending: C. R. Collins, E. E. Yaggy, Jr., G. I. Chinn, J. O. Miller, E. R. Schuelke, J. E. Connors.
Exhibiting: Quiet May conversion oilburners.

**McDonnell & Miller, Inc.** (655)
Attending: E. N. McDonnell, George LaRoi, Parker Devlin, J. W. Ramday, Howard Peary, Nils W. Swanson.
Exhibiting: Boiler water level controls, safety relief valves, humidifier water level controls and related equipment.

**Mercoid Corp.** (658)
Attending: I. E. McCabe, Hugh Courteol, J. W. Owens, R. F. Fisher, W. L. Colterjohn, W. K. Stauffer, W. E. Jones, F. C. Hayes, J. J. Byrne, J. A. Johnson.
Exhibiting: Complete line of automatic heating controls.

**Metromatic Oil Burner Co.** (213)
Attending: Fred D'Angelo, Wendell F. Austin, R. Sykes, R. Pyne.
Exhibiting: Metropac air conditioner, with year-'round domestic hot water supply, Metromatic oilburner.

**Minneapolis-Honeywell Regulator Co.** (781)
Attending: Tom McDonald, A. H. Lockrae, Arnold Michelson, Warren Jennings, H. E. Williams, W. J. Brown, John Dorsey, D. J. Peterson, C. C. Cochran, H. E. Chapler, W. J. McGoldrick, John Donovan, George Oliver, Gage Masterson, Robert Hayes, John A. Young.
Exhibiting: Electronic controls for domestic and industrial oilburners, and panel heating, Time Modulation, the Chronotherm, thermostats and Protectorelays for domestic and industrial oilburners.

**Monarch Mfg. Works, Inc.** (355)
Attending: E. B. Frame, R. F. Stone, J. M. Carroll.
Exhibiting: Oilburner nozzles, air mixing equipment, combustion heads, valves, strainers.

**Morse-Smith-Morse, Inc.** (756)
Attending: R. E. Chase, J. C. Dieselman.
Exhibiting: Fusible oil valves, oil filters, thermal switches, tank gauges, vent caps, lever valves.

**L. J. Mueller Furnace Co.** (477)
Attending: C. L. Hewitt, Jr., F. J. Nunlist, H. B. Smith, John H. Reock.
Exhibiting: Modular furnace, conversion oilburners, oilfired winter air conditioners.

**New England Technical Institute** (301)
Attending: Arthur L. Wales, Frank J. Conley, Ernest G. Earle.
Exhibiting: Screen projections showing student activities in automatic oilheating course.

**Norge Heat Division** (694)
Attending: C. S. Davis, Jr., J. W. Oswald, M. A. Straub, J. C. Cooper, H. W. Ford, G. M. Johnston, A. H. Kitson, J. M. McNamara, W. C. Walter.
Exhibiting: Vacuum draft oilburning furnaces, conversion oilburner, oilfired floor furnaces, gas fired furnaces and water heaters.

**Oil Equipment Laboratories, Inc.** (593)
Attending: John M. Wittke, John L. Lehman, E. S. Cushing.
Exhibiting: Oilburners, boiler-burner and winter air conditioning units.

**Oil Equipment Mfg. Corp.** (793)
Attending: Daniel Kaufman, Arnold J. Alderman, Irving Marinoff.
Exhibiting: King tank gauge, Inconel combustion chambers, duplex slip-thru tank bushings, oilburner pump and fuel unit tester.

**Oil Heat Institute of New England** (224)
Attending: Fred N. Beckwith, William F. Briggs, Otto Urban.
Exhibiting: Headquarters for New England oilheating dealers.

**Penn Electric Switch Co.** (588)
Attending: A. W. Barr, A. L. Rubel, E. A. Price, J. E. Corbett, Carlos Morgan, M. E. Henning, R. H. Luscombe, R. V. Clark, R. L. Ratliff.
Exhibiting: Room thermostats, humidistats, Day-Nite Tem-Clocks, hot water and warm air temperature controls, steam pressure controls, relays and relay transformers, oilburner stack switches, liquid expansion furnace controls, line starters and motor contactors, boiler water level controls.

**Perfex Corp.** (581)
Attending: Messrs. Lewis, Butler, Black, Pratt, McGuire, Campbell, DeVos, Neess, Meeg, Soper, Blackhall, Jensen.
Exhibiting: Complete line of controls for domestic and industrial oilburner installations, featuring large scale models of oilburner primary control and Magic Dial thermostat.

**Plumbing & Heating Journal** (131)
Exhibiting: Publication.

**Prat-Daniel Corp.** (591)
Attending: E. M. Tarmoff, Fred Cole.
Exhibiting: "Thermolac" Oil Fired Industrial Packaged Heater.

**Preferred Utilities Mfg. Corp.** (479)
Attending: R. S. Bohn, W. H. Bohn, J. S. Kaplan, W. H. Schneider, K. Stevens.
Exhibiting: Unit steam gerator, horizontal rotary oilburner, Draft-A-Justor.

**Quaker Mfg. Co.** (323)
Attending: A. T. Atwill, H. J. Nelson, J. B. Mathis, O. B. Nelson.
Exhibiting: Vaporizing furnace-burner unit, 60,000 Btu; Hi-Boy and Lo-Boy vaporizing furnace units, 70,000 and 75,000 Btu; oilburning space heaters.

**Quiet Automatic Burner Corp.** (361)
Attending: J. Gordon Kaveny, G. Stern, J. Prince, Miss R. Hobbs.
Exhibiting: Oilburners.

**Quiet-Heet Mfg. Corp.** (766)
Attending: S. L. Peters, S. L. Sloan, H. M. Spitzer, M. Kenneth, I. Winston.
Exhibiting: Oilburners, sump pumps, room window sill air conditioners.

**R. C. S. Tool Sales Corp.** (130)
Attending: Francis S. Russell, Dale D. Davis.
Exhibiting: Reciprocating portable power

saw, gear driven attachment for electric drill.

**Radiant Utilities Corp.** (609)
Attending: Jacob G. Goldberg, Julius S. Goldberg, Arthur A. Marcus, Joseph Bloom.
Exhibiting: Conversion oilburners.

**Rajah Co.** (761)
Attending: Robert A. Bell, Arthur L. Kendall, Ernest W. Law.
Exhibiting: Terminals and tools.

**Refractory & Insulation Corp.** (230)
Attending: H. L. Marwick, J. J. Bliss.
Exhibiting: R & I combustion chamber, hearth cement, Stic-tite, No. 3000, Pakinsul, black furnace cement.

**Reif-Rexoil, Inc.** (754)
Attending: Allan F. Reif, Charles A. Reif, plus representatives.
Exhibiting: Domestic, commercial and industrial pressure atomizing oilburners, horizontal rotary oilburners, boiler and furnace-burner units, hot water heater.

**Ret-Rac Corp.** (101)
Attending: Harry W. Carter and others.
Exhibiting: Uni-Heat conversion oilburners and tankless water heaters.

**Rochester Mfg. Co., Inc.** (586)
Attending: William C. Chase, John Kershaw, Clark Hastings, William Debler, Samuel Skner, Dan Friedman.
Exhibiting: Oil tank gauges, stack and duct thermometers, oilburner service test kits.

**S. O. S. Products Co., Inc.** (630)
Attending: I. S. Pryor, G. G. French, E. B. Freeman, S. Schwartz.
Exhibiting: Speed Heet and Fire King combustion chambers, chemical and refractory products.

**Scully Signal Co.** (331)
Attending: Frank P. Scully, Carl A. Goddard, Arthur Gray, Edward Mathey, Robert G. Scully.
Exhibiting: VENTALARM signal, FASFILL connector, REMOTAMATIC nozzle pump control, FIL-GARD and a mystery item.

**Shell Oil Co.** (606)
Attending: J. L. Minner, C. M. Mockler, W. A. Sullivan, Jr., E. B. Glendenning, W. H. Tyler.
Exhibiting: Fueloil.

**Silent Glow Oil Burner Corp.** (210)
Attending: R. M. Sherman, R. W. Secor, E. Heiland, Fred Quattromani, B. F. Filieo, Howard Sherman, John Carlberg.
Exhibiting: Conversion oilburners, boiler and furnace-burner units.

**H. B. Smith Co., Inc.** (618)
Attending: C. T. Flint, Preston Williams, A. J. Holmes, E. Herzog, A. Barnes, J. E. Reed.
Exhibiting: New boiler-burner unit for small homes, Smith Mills Reliance boiler for oil-firing with emergency handfiring grates.

**Sparkler Mfg. Co.** (769)
Attending: A. C. Kracklauer, F. W. Leuthesser.
Exhibiting: Oil filters.

**Staffco Eng. Co.** (411)
Attending: Fred Ravnsbeck.
Exhibiting: Industrial rotary oilburners.

**Stefco Steel Co.** (330)
Attending: J. G. Gregory, F. J. Hughes, Burt Power, R. J. Hughes.
Exhibiting: Round, square and rectangular Panelox stainless steel combustion chambers.

**Sundstrand Engineering Co.** (421)
Attending: R. H. Gustafson.
Exhibiting: Conversion oilburners.

**Sundstrand Hydraulic Div.** (455)
Attending: B. F. Olson, L. H. Schuette, C. W. Lang, H. O. Wahlmark, R. J. Murphy, P. A. Anderson, O. E. Mayfield, W. R. Kiefer, B. L. Soderberg.
Exhibiting: Oilburner pumps and fuel units.

**Sun-Ray Burner Mfg. Corp.** (678)
Attending: Gabe M. Marin, Alfred Luft, Henry E. Nickerson, Mike Bressen, Jack Thurston, Joseph Amato, Emmons Nickerson, Al Leavitt.
Exhibiting: Conversion oilburners, with models featuring Shell combustion head.

**Super Electric Products Corp.** (771)
Attending: Charles Rapiport, Max J. Sarver, Arthur Koyce, George Euld.
Exhibiting: Oilburner ignition transformers.

**Swirling Heat Corp.** (500)
Attending: Jess Donella, George K. Kelley, J. C. McCorkhill, R. D. Schoenwetter.
Exhibiting: Oilburners, boiler and furnace-burner units.

**Taco Heaters, Inc.** (523)
Attending: J. Balter, G. Gilfeather, E. T. Houlihan, J. R. Murphy, R. T. Schoerner.
Exhibiting: Taco-Vents, circulators, relief and reducing valves, water heaters, heat exchangers, Paneltrol, Taco-Matic valves, tempering valves.

**Thatcher Furnace Co.** (687)
Attending: C. Sahler, R. Cook, M. Beard, D. Turner, E. Seeley, M. MacLellan, C. Olson, P. Fleury.
Exhibiting: V-series oilfired Comfortmaster, Oilmaster series A, #550, A-204, #481, 0-174 oilfired winter air conditioning units.

**H. A. Thrush & Co.** (119)
Attending: Harry Thompson, D. W. Heckman, Fred Williams, Rudy Lund, E. D. Noland, G. H. Fox.
Exhibiting: Hot water heating specialties—circulators, flow control valves, indirect heater, high and low pressure reducing and relief valves, one pipe supply tees.

**Timken Silent Automatic Div.** (313)
Attending: W. F. Rockwell, T. A. Crawford, C. A. Cooper, M. A. Powers, E. H. Haugen, W. J. Chappell, R. M. Marberry, M. F. Robbins, F. M. Jordan and all New England district sales managers.
Exhibiting: Two new kitchen type oil boilers, wall flame and pressure type conversion oilburners, high and low oil boilers and furnaces, tank and coil type water heaters.

**Toridheet Div.** (559)
Attending: W. J. Smith, Jr., R. J. Lucas, L. D. Clough, J. F. Donnelly, J. A. Lappin, D. W. Rouse, L. F. Dienst.
Exhibiting: Rotary wall flame and pressure oilburners, boiler-burner units, Hi-Boy winter air conditioning furnaces, water heaters.

**Torrington Mfg. Co.** (424)
Attending: Donald G. Leslie, Roger T. Lyman, Fairfax R. Wheelan, Michael J. Fabbri, Anthony N. Casadei.
Exhibiting: New free-wheeling Airotor, blower wheels and propeller type fan blades.

**Tuthill Pump Co.** (786)
Attending: William J. Wagner, E. Chapman, R. Tannehill.
Exhibiting: Oilburner fuel units and pumps.

**U. S. Machine Corp.** (577)
Attending: H. E. Winkler, Claude A. Potts, J. O. Williams, Walter Blake and ten district sales managers.
Exhibiting: Winkler high and low pressure oilburners, furnaces, floor furnace and space heaters.

**Utica Radiator Corp.** (510)
Attending: F. R. Brennan, J. W. Gladwin, C. A. Sawade.
Exhibiting: Boilers, radiators, baseboard radiators.

**V & E Products, Inc.** (554)
Attending: Walter Moriarty, Joseph E. Eubanks, Lionel Jacobs.
Exhibiting: Boiler-burner units.

**Waltham Oil Burner Co.** (406)
Attending: Stanley C. Paterson, Ted S. Campbell, R. B. Rideout, Carl J. Ludwig, C. A. Cook.
Exhibiting: Oilburners and steel boilers.

**Waterfilm Boilers, Inc.** (587)
Attending: A. R. Hanson, E. K. Wodecka, E. Stanley Freeman, L. Goldstein.
Exhibiting: Boiler and burner units, featuring a steel sectional boiler that can be taken through a 2-foot door.

**Waterman Waterbury Co.** (512)
Attending: Stuart Smith, William Morrisey, William Rigby, Tom Donahue.
Exhibiting: Waterbury 6300 and 1300 series heavy duty oilfired air conditioners.

**Watts Regulator Co.** (357)
Attending: Cyrus S. Gates, W. M. Dillon, John Dale.
Exhibiting: Relief and pressure reducing valves, water tempering devices, boiler water feeders and low water cut-offs, automatic temperature and pressure relief valves, vacuum breakers.

**Weatherall Engineers, Inc.** (318)
Attending: R. H. Chadwell, Gleason Lee, R. M. MacDonald, A. G. Piece, J. K. Stedman, W. L. Cummings.
Exhibiting: Conversion burners, oilfired boiler-burner and furnace units, Cyclotherm units, electronic-turbulator.

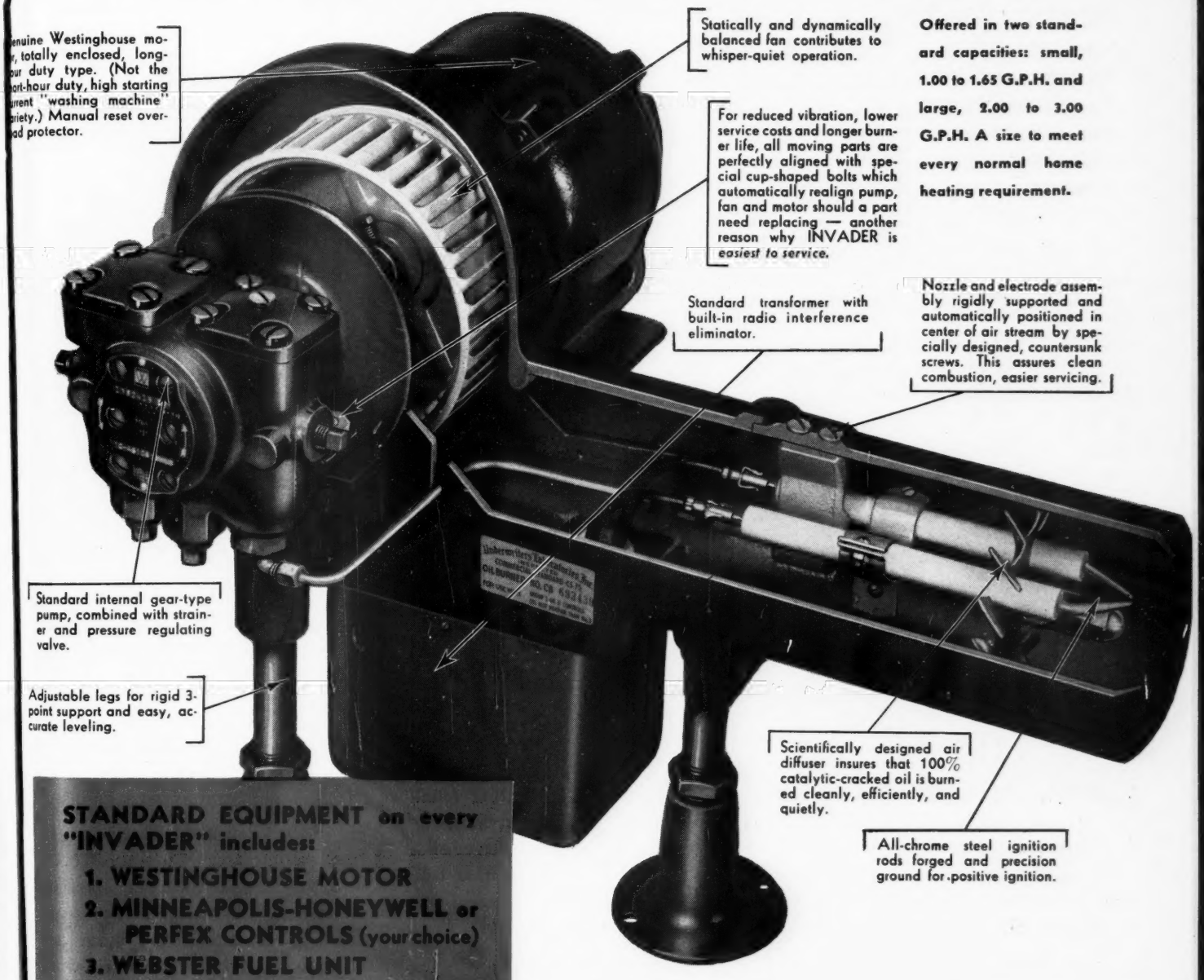
**Webster Electric Co.** (667)
Attending: P. G. Crewe, H. C. Osborne, E. M. Ford, S. A. Loeb, B. T. Weichers, H. B. Hastings, D. J. Munroe, L. S. Ehrich.
Exhibiting: Fuel units, ignition transformers, Thermodrive warm air modulating unit.

**Westcott-Alexander, Inc.** (508)
Attending: Ray Engheben, John O'Reilly, Elmer Norwood, Bernard Garrell, William Westcott.
Exhibiting: Boiler and air conditioners.

**Williams Oil-O-Matic Div.** (695)
Attending: H. W. Burritt, M. V. Stagg, E. H. Davison, R. G. Pinkerton, W. L. Sneltjes, R. C. Osborn, H. E. Earl, N. A. Palmer, M. P. Langdoc, W. K. Johnston,

(*Continued on page 86*)

# Comparison proves the "INVADER" alone gives you ALL these Silent Glow features, non-existent in other burners.


enuine Westinghouse mo-, totally enclosed, long-our duty type. (Not the ort-hour duty, high starting urrent "washing machine" riety.) Manual reset over-ad protector.
Statically and dynamically balanced fan contributes to whisper-quiet operation.
For reduced vibration, lower service costs and longer burner life, all moving parts are perfectly aligned with special cup-shaped bolts which automatically realign pump, fan and motor should a part need replacing — another reason why INVADER is *easiest to service.*
Offered in two standard capacities: small, 1.00 to 1.65 G.P.H. and large, 2.00 to 3.00 G.P.H. A size to meet every normal home heating requirement.
Standard transformer with built-in radio interference eliminator.
Nozzle and electrode assembly rigidly supported and automatically positioned in center of air stream by specially designed, countersunk screws. This assures clean combustion, easier servicing.
Standard internal gear-type pump, combined with strainer and pressure regulating valve.
Adjustable legs for rigid 3-point support and easy, accurate leveling.
Scientifically designed air diffuser insures that 100% catalytic-cracked oil is burned cleanly, efficiently, and quietly.
All-chrome steel ignition rods forged and precision ground for positive ignition.

**STANDARD EQUIPMENT on every "INVADER" includes:**

1. **WESTINGHOUSE MOTOR**
2. **MINNEAPOLIS-HONEYWELL or PERFEX CONTROLS (your choice)**
3. **WEBSTER FUEL UNIT**

*"Your Money Back if this isn't the greatest oil burner value you've ever seen!"*

Ross Sherman
President

This guarantee is backed by the A+A1 rating and reputation of The Silent Glow Oil Burner Corp., a pioneer and leading manufacturer in the oil heating field, with a quarter century background of experience.

## Get all the Facts Today!

**To: THE SILENT GLOW OIL BURNER CORP.**
**850 Windsor St., Hartford 5, Connecticut**
**1500 So. Western Ave., Chicago 8, Illinois**

Send us the complete story about "Invader" including prices and your money-back guarantee.

Name_____

Company_____

Street_____

City_____ State_____

G. M. Cormack, C. A. Fisk, J. H. Shoemaker, J. E. Nesbitt, L. G. Brown, S. J. Dowling.
Exhibiting: New line of low and high pressure conversion oilburners, new models oilfired winter air conditioners, new cast iron and steel oilfired boilers.

**York-Shipley, Inc.** (354)
Attending: S. H. Shipley, H. M. Carpenter, G. E. Athana, J. H. Lahey, M. Landau, G. D. Frank, and distributor personnel.
Exhibiting: Conversion burners, boiler units, winter air conditioners, radiant heating boiler units, horizontal rotary burners, domestic water heaters, packaged steam generators.



## Old Timers To Meet During Boston Burner Show

OLD TIMERS will take over Coral Gables, located at North Weymouth, Mass., Boston's South Shore, on the evening of May 17, for their annual meeting during the National Oil Heat Exposition. Members of the Old Timers' Club of the Oilburner Industry, Inc., will have a choice of steak or shore dinner and will be treated to the traditional entertainment, which has been promised to parallel the shows presented during previous gatherings.

Private cars and chartered buses will provide transportation to Coral Gables from Mechanics' Hall, where the exposition is taking place, and from the Hotel Statler, Convention headquarters. F. B. Caldwell, secretary of the Club, has invited eligibles—fifteen years' or longer service in the oilburner industry—to join and participate in the festivities by communicating with him at 64 E. Jackson Blvd., Chicago 4.



## Oil Man Asks To Delay Synthetics

CURRENT PROPOSALS urging immediate construction of synthetic oil plants on a large scale were challenged sharply April 6, by Chester F. Smith, vice-president of the American Petroleum Institute's Division of Refining.

Smith, addressing a dinner meeting of the 14th mid-year meeting of the division in Houston, said there is "serious question" whether there is any "economic, conservation, or national security need" now for embarking on such a program at the present.

He asserted the country still is at least a generation away from the urgency of a synthetic industry. "When the time comes," he emphasized, "the oil industry will be ready." Smith said old company laboratories have been working on synthetic problems for more than a decade, and have solved most of them already.

The API leader told the dinner meeting:

"In my view, there is a serious question whether the national welfare would be served by starting such a program now, either for immediate or near future domestic petroleum requirements, or as standby capacity for a potential emergency."

Smith, vice-president of the Standard Oil Co. (New Jersey), made no mention of the federal government's synthetic oil proposals in his address. Nor did he identify the sponsors of the program calling for immediate large-scale construction of synthetic plants using coal and shale.



## U. S. Department of Labor Fueloil Prices February

FIELD INVESTIGATORS for the Department of Labor monthly check prices of principal fuels in several cities in each section of the country. Getting retail quotations from various suppliers in each market, the prices are averaged and published. Those in the table that follow were taken February 15 (cents per gallon):

| | *Range* | *No. 1* | *No. 2* | *No. 3* |
|---|---|---|---|---|
| Boston | 14.53 | 14.35 | 12.22 | .. |
| Manchester | 15.27 | 14.80 | 13.00 | .. |
| Portland, Me. | 14.20 | 14.20 | 12.30 | .. |
| ***Buffalo | 15.15 | .. | 13.84 | 13.84 |
| **New York | .. | .. | 12.30 | .. |
| Philadelphia | .. | 13.50 | 12.00 | .. |
| **Chicago | 15.05 | 14.48 | 13.67 | 13.67 |
| ***Detroit | .. | 14.55 | 13.70 | 13.29 |
| Milwaukee | .. | 15.06 | 14.16 | 14.18 |
| *Kansas City | .. | 13.29 | 12.61 | 12.90 |
| Minneapolis | 14.87 | 14.63 | 13.88 | 13.93 |
| **Baltimore | .. | 13.36 | 12.14 | .. |
| Wash., D. C. | .. | 13.60 | 12.30 | .. |
| Jacksonville | .. | 14.57 | 13.40 | .. |
| Norfolk | .. | 13.40 | 11.40 | 11.40 |
| Richmond | .. | 13.70 | 11.80 | .. |
| Savannah | .. | 15.00 | 14.00 | .. |
| ***New Orleans | .. | 14.63 | 12.88 | 12.88 |
| Portland, Ore. | .. | 13.94 | 11.64 | 7.28 |
| ***San Francisco | .. | 13.70 | 11.38 | 7.19 |
| ***Seattle | .. | 14.77 | 12.65 | 7.54 |

*Price includes 1% sales tax.
**Price includes 2% sales tax.
***Price includes 3% sales tax.

## British Oil Man Advocates Increased Fueloil Imports

DATA on oil industry trends in Britain were given by C. T. Brunner, assistant general manager Shell Mex and B. P. speaking recently to the Institute of Petroleum. By 1953 production of oil by British companies would be doubled and a vast expansion of refining work would be undertaken in Britain. This expansion was dictated by the expanded use of oil products in Britain; these were now the second largest single import. In 1938 total estimated consumption of all fuels including bunkers but not naval bunkers was 10,300,000 tons. In 1948 the figure had jumped to 14,900,000 tons. Farm mechanization was boosting the demand for kerosene and this was now double the 1938 level. Gas, diesel and fueloils now stood at 4,590,000 tons against the 1938 figure of 1,600,000 tons. Mr. Brunner advocated an expanded import of fueloil to release coal for export.

On such a deal Britain would gain in foreign exchange at current prices some 38 shillings per ton, taking the differing thermal values into consideration.

The British position in the oil production industry was very strong, and British and Dutch interests outside the U.S.A. produced in 1948 some 450 million barrels of petroleum, representing 12.7% of the world total. Expansion of oil from sterling areas was assisting, he claimed, to adjust the balance of foreign indebtedness. Admitting this present need for Government cooperation he said that the oil industry in Britain was looking forward to the period when it could resume full freedom.



*A. C. Reinhard* has become chairman of the board, House of Reinhard, Minneapolis, Minn. and *E. L. Davis,* former vice president and treasurer, has succeeded him as president of the Upper Midwest distributor. Marking the first overall change in the leadership of the company in its forty-seven years of operation, Reinhard at the same time expanded its board of directors by the addition of six younger executives. *A. C. Reinhard, Jr.,* with the firm for fifteen years, has become vice president and secretary and also is on the board.

# AGAIN!

# TIMKEN *Silent Automatic*

## is FIRST with the BEST!

### Revolutionary new

# KITCHEN-TYPE OIL BOILER

***—supplies automatic heat and hot water for four- and five-room homes and is so compact and quiet it may be installed IN THE KITCHEN!***

Here's the most important small home heating news in many years—the new Timken Silent Automatic Kitchen-Type Oil Boiler! It's the sensation of the heating industry—designed to push your profits to a new high!

Finished in gleaming white—*for kitchen installation*—this extraordinary unit combines a house-heating boiler, fired by the famous Wall-Flame Oil Burner, an instantaneous water heater, an expansion tank, a motorized circulating pump, a tempering valve and complete automatic controls. It is enclosed in a beautiful counter-high cabinet topped by a stainless steel work surface.

Think of the sales appeal this unique factory-assembled heating package will have for your prospects! Best of all, it's priced to put you *ahead* of your competition—*on top* of the small-home-heating market! Here's proof again that it pays to sell the Timken Silent Automatic line!

See the new Timken Silent Automatic Kitchen-Type Oil Boiler at the National Oil Heat Institute Exposition, Mechanics' Hall, Boston, May 16-20.

**TIMKEN**
*Silent Automatic*
**HEAT**
OIL · GAS · COAL
TIMKEN SILENT AUTOMATIC DIVISION
The Timken-Detroit Axle Company - Jackson, Michigan
Accepted S.A. Standard

# Washington Dealers Begin Advertising Program

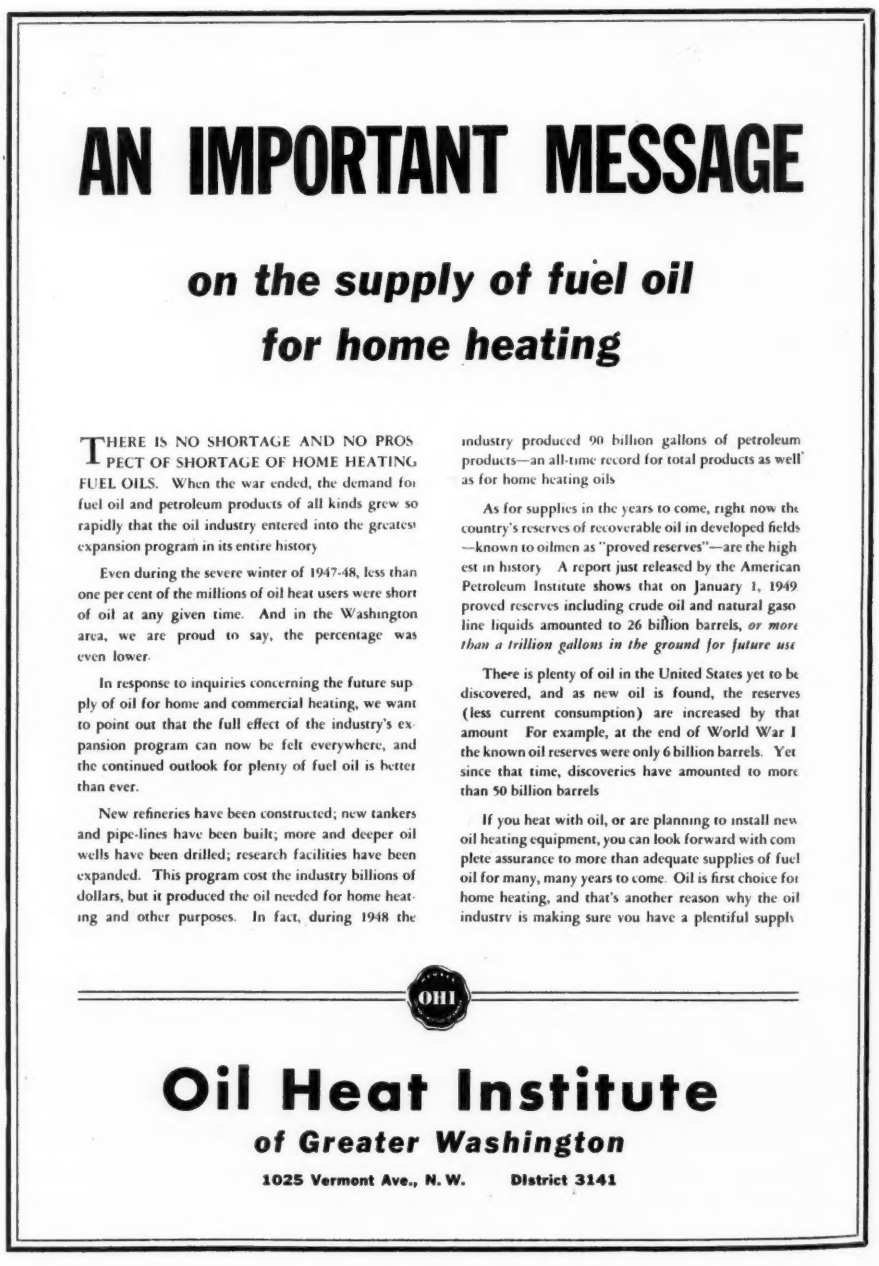
AS A MEANS of stimulating local oil-burner sales and to combat gas competition which has intensified since the Public Utilities Commission recently lifted the ban on gas installations, Oil Heat Institute of Greater Washington, D. C., has embarked on a newspaper advertising campaign aimed at the consumer. A. Graham Shields, managing director of the Institute, reveals that the campaign commenced on March 27 with a large announcement advertisement in the *Washington Star,* followed by similar large space insertions on March 28 and 29 in the *Times Herald* and on March 30 in the *Post.*

During the month of April an additional fifteen advertisements, 10″ high and 2 columns wide, appeared in the same newspapers with an additional three appearing in the *Washington News* and two in the *Alexandria Gazette.* Mr. Shields describes these as a one month concentrated drive, with plans to continue the institutional advertising all summer at a slower pace.

The 10″ advertisements were changed each week, one discussing new installations, the others dealing with conversions, replacements, safety angle and such other subjects as would interest a prospective purchaser of domestic oil-heating equipment. Reprints of the large announcement advertisements also were made available to members to be used by their salesmen or for use in individual tie-in advertising.

During the month of April, in an attempt to have some dealer advertising appear each day, dealers were asked to cooperate with Institute headquarters in planning schedules to avoid the running of a number of advertisements on one day and none on the next. Also, all dealers were urged to concentrate their advertising as much as possible during April to supplement the intensive Institute campaign. Bumper banners for cars and trucks also have been procured and it is planned to display them on all company vehicles throughout the summer.

The accompanying reproduction of one of the advertisements in the campaign is a statement on the supply of domestic fueloil. Opening with the statement, "There is no shortage and no prospect of shortage of home heating fueloils," the copy continues with a brief review of the events leading to the supply difficulties experienced during the winter of 1947-48. Even during that period the nation-wide average of customers out of oil at any given time was 1%, the copy explains, and Washington boasted of even a lower percentage figure. Production of 90 billion gallons of products by the petroleum industry in 1948, attributed to the "greatest expansion program in its entire history." The construction of new refinery facilities, tankers and pipe-lines, highest proved reserves in history and new discoveries yet to come, all are cited in the Institute's advertisement, to assure homeowners of "more than adequate supplies of fueloil for many, many years to come."



**AN IMPORTANT MESSAGE**

***on the supply of fuel oil for home heating***

THERE IS NO SHORTAGE AND NO PROSPECT OF SHORTAGE OF HOME HEATING FUEL OILS. When the war ended, the demand for fuel oil and petroleum products of all kinds grew so rapidly that the oil industry entered into the greatest expansion program in its entire history.

Even during the severe winter of 1947-48, less than one per cent of the millions of oil heat users were short of oil at any given time. And in the Washington area, we are proud to say, the percentage was even lower.

In response to inquiries concerning the future supply of oil for home and commercial heating, we want to point out that the full effect of the industry's expansion program can now be felt everywhere, and the continued outlook for plenty of fuel oil is better than ever.

New refineries have been constructed; new tankers and pipe-lines have been built; more and deeper oil wells have been drilled; research facilities have been expanded. This program cost the industry billions of dollars, but it produced the oil needed for home heating and other purposes. In fact, during 1948 the industry produced 90 billion gallons of petroleum products—an all-time record for total products as well as for home heating oils.

As for supplies in the years to come, right now the country's reserves of recoverable oil in developed fields —known to oilmen as "proved reserves"—are the highest in history. A report just released by the American Petroleum Institute shows that on January 1, 1949 proved reserves including crude oil and natural gasoline liquids amounted to 26 billion barrels, *or more than a trillion gallons in the ground for future use.*

There is plenty of oil in the United States yet to be discovered, and as new oil is found, the reserves (less current consumption) are increased by that amount. For example, at the end of World War I the known oil reserves were only 6 billion barrels. Yet since that time, discoveries have amounted to more than 50 billion barrels.

If you heat with oil, or are planning to install new oil heating equipment, you can look forward with complete assurance to more than adequate supplies of fuel oil for many, many years to come. Oil is first choice for home heating, and that's another reason why the oil industry is making sure you have a plentiful supply.

OHI

**Oil Heat Institute**

***of Greater Washington***

**1025 Vermont Ave., N. W.  District 3141**

**One of a series** *of advertisements being sponsored by members of the Oil Heat Institute of Greater Washington, D. C., this one assuring consumers of adequate supplies of fueloil for home heating.*

# *Coasting Hub"*

## SOLVES THE "AFTER-FIRE" PROBLEM!

Maintains air supply until fire burns out clean!

YOU'VE been *looking* for it . . . *hoping* for it . . . and now, at last, its *here!* The engineer who discovered it knew exactly what you wanted, and went right to the heart of the problem! And now, *at negligible cost,* a simple device solves a perplexing problem intensified by catalytic oils!

Gives clean stops without soot, smoke or shudder!

Like many great inventions, Torrington's New *Free Wheeling* AIROTOR is as simple as A-B-C:— When pump and motor stop, *"The Fan with the Coasting Hub"* continues to supply air until the oil *burns itself out clean!* No more soot, smoke or shudder — just *clean, quiet shutdowns!*

We think you'll be quick to agree that Torrington's New *Free Wheeling* AIROTOR is a great improvement — and a long-needed one — for pressure atomizing burners. And you'll quickly see the tremendous sales possibilities for you in this new development — equally practical for new equipment or to modernize burners already installed!

Reduces fouling of electrodes!

Here's an advantage you can *advertise!* Plan now to ring up extra profits by promoting this great new sales feature!

The TORRINGTON MANUFACTURING COMPANY
TORRINGTON, CONNECTICUT

Solves the "after-fire" problem at negligible cost!

Furnished to drive Guardian or Lovejoy couplings!

Fits any standard shaft extension!

Goes anywhere a standard wheel is used!

# Union Oil Official Sees Surplus of Pacific Residuals

HEAVY FUELOILS threaten to become a problem in the Pacific Coast marketing area according to the report of Reese H. Taylor, president of Union Oil Company of California to the company's annual meeting. Stocks are climbing as the market declines, and the outlook is for more, rather than less, residuals in the future.

Current California crude production is averaging 950,000 barrels a day, Mr. Taylor reported, an increase of about 6% over 1945. Supplies of gasoline, diesel oils and middle-of-the-barrel distillates are about in balance with demand, but heavy fueloils show a growing surplus. This surplus threatens to grow still further as increased refinery runs come from heavier crude with resulting larger yields of residuals.

The market for heavy fueloils is weakening, Mr. Taylor reported. Heavy fueloil price has dropped 45 cents per barrel since the first of the year with the latest decrease of 20 cents a barrel which became effective on April 1.

"There are two primary reasons for the decline in the fueloil market," Mr. Taylor said. "The first is the general trend on the part of the railroads to convert from steam to diesel operation. As an example of what this means in terms of the quantities of fueloil involved, the railroads in our marketing territory used in 1945 approximately 126,000 barrels per day of heavy fueloil as fuel for their steam locomotives. However, their liftings dropped to an average of 91,000 barrels per day in 1948—a decrease of 28%. And from all indications, we can expect more diesel locomotives in the future.

"The second market factor is the importation of natural gas by the recently completed pipe line from West Texas to Southern California. This has likewise affected the potential demand for fueloil. Estimates place the natural gas imported into this area currently at the equivalent of approximately 51,000 barrels per day of fueloil. While this does not necessarily mean that gas has supplanted fueloil to that extent, it does mean there will be that much less of a potential market for fueloil. A further indication in this direction is that the Federal Power Commission has recently approved a 108-million dollar project to bring natural gas from West Texas to Central California and the Bay Area."

◈

## Considers Revision Of Warm Air Furnace Standard

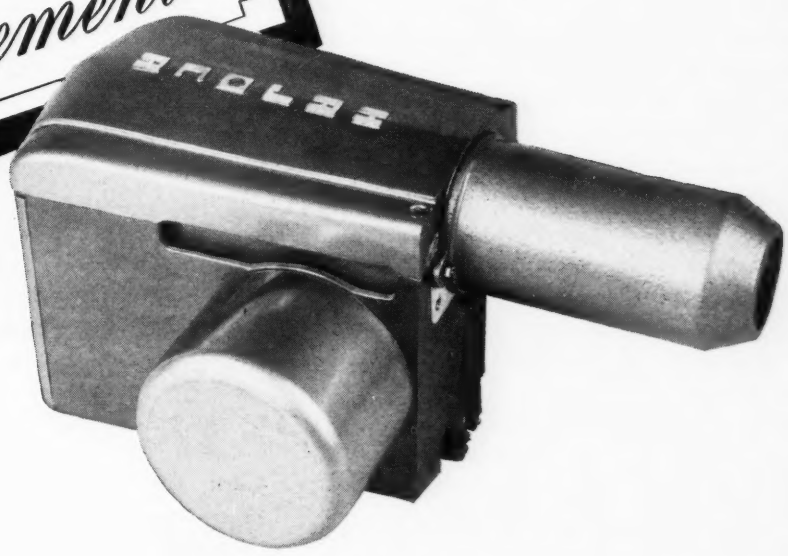
A RECOMMENDED REVISION of Warm-Air Furnaces Equipped With Vaporizing Pot-Type Oil Burners, Commercial Standard CS104-46, has been submitted to manufacturers and other interested groups for consideration and approval, according to an announcement by the Commodity Standards Division of the National Bureau of Standards.

This recommended revision was originally proposed by the Federal Housing Administration. It provides for a field test and the posting of an installation certificate, such as are now included under Automatic Mechanical-Draft Oil Burners Designed for Domestic Installation, Commercial Standard CS75-42; contains several other adjustments.

Mimeographed copies of the recommended revision (TS-4788) are available, and may be obtained, as long as the limited supply lasts, from the Commodity Standards Division, National Bureau of Standards, Washington 25, D. C.

**Griffin Fuel Co.,** *Tacoma, Wash., instituted emergency delivery service during February when thawing conditions resulted in a two-ton load limit on oil mat and gravel roads in Pierce county. Ed Griffin, manager, explained that large trucks were stationed at key places in the county and seventeen light pick-ups, operating from the trucks, delivered oil in drums over the closed roads. For other points residents were told to phone the main office or bring their containers to be served from the trucks. Display advertisements in local newspapers were used to announce the emergency system which continued until normal deliveries were resumed. The top picture shows Griffin's new White No. 200, 3,000 gal. traveling oil plant, filling drums to be delivered in the panel trucks. Shown also is the company's oldest truck, a 1912 White, pressed into service for emergency deliveries.*

*An Important Announcement*



**see the NEW**

# HAJOCA OIL BURNER

**at Booth No. 691 — NATIONAL OIL HEAT EXPOSITION — Mechanics' Hall, Boston, Mass.**

**MAY 16th - 20th**

The Hajoca Oil Burner, developed after years of research and study, is entirely new in every respect. It has been thoroughly tested for more than a year in typical homes. Results of these carefully conducted tests of Hajoca Oil Burners show fuel savings as high as 30% over burners they replaced.

Don't miss this opportunity to see the New Hajoca Oil Burner at the Boston O.H.I. Show.

You'll be vitally interested in the many new features which have been incorporated in this most modern domestic burner . . . features that will make profitable burner sales.

**MAIL THE COUPON BELOW FOR INFORMATION ABOUT PROFITABLE DEALER PLAN**

P-16

I'm interested in the Hajoca Oil Burner dealer plan. Rush information at once.

Company.....

Address.....

.....

Your Name.....

**31 Branches Serving the Atlantic Seaboard**

## HAJOCA CORPORATION

*From Newark to Tampa and inland to Chattanooga.*
*Consult your local telephone directory for your nearest branch.*

**General Offices: 31st and WALNUT STREET BRIDGE**
**PHILADELPHIA 4, PA.**

fueloil & oil heat

# Manufacturers Activities

## Four Timken Meetings Stress Sales Management Problems

TIMKEN SILENT AUTOMATIC has just completed four Sales Management meetings, designed to brief dealers and their sales departments on proven business-getting methods. Each meeting was a two-day affair with major emphasis on the essential details of sales planning and management. Field and factory personnel participated in all sessions.

The series started at Boston, April 18 and 19, moved to New York April 21 and 22, and on to Chicago April 28 and 29. The final sessions were held at Toronto May 2 and 3.

Factory personnel headed by T. A. Crawford, general sales manager, included R. M. Marberry, W. J. Chappell, Milton Jordan and J. H. Hansen. J. G. Standart of McManus, John & Adams, advertising agency covered the planned advertising program.

Emphasis at all meetings was put on dealer sales to builders, how to figure builder jobs and points to be stressed. Forum sessions each day afforded time for an exchange of experiences between dealers and with the field and factory forces.

## Early Completion Seen For Two Shell Pipe Lines

TWO of the largest construction projects of Shell Pipe Line Corp., Houston, Texas, are expected to be completed by mid-year. Both the 500-mile Ozark pipe line from Cushing, Okla., to Wood River, Ill., in which Shell has a 55% interest, and the Basin pipe line from Jal, New Mexico to Cushing, of which Shell is a one-third owner, should be in full operation by June.

When completed, the lines will provide continuous transportation for crude oil from New Mexico and West Texas some 1,000 miles to Wood River, Ill., where Shell Oil operates a refinery delivering 100,000 bbls. a day of petroleum products. Completion of the lines will constitute further assurance of an adequate supply for the mid-western states.

The 20/22 segment of the Basin line from Jal to Wichita Falls, Tex., has been in use since last July and the 24" segment to Cushing is scheduled for completion this month. The Ozark system, with a capacity of 187,000 bbls. of crude oil daily, was begun in November 1948 and presented such construction problems as the crossing of the Ozark mountains, and the crossing of the Missouri and Mississippi Rivers. The greatest obstacle was overcome with the dual crossing in April of the Missouri River.

Manufacture of the 93,000 tons of 22" pipe needed for the line consumed 85 days' continuous mill operation and its transportation an average of 700 miles to the scene of construction involved the dispatch of a 60-car freight train every 36 hours, or a total of 600 cars in continuous service during the period.

## Seltzer Company Named Heil Heating Distributor

SELTZER & CO., INC., Boston 15, Mass., has been named as distributors in central and eastern Massachusetts, New Hampshire and Maine, for the line of automatic heating equipment made by Heil Co., Hillside 5, N. J.

## Present New Products At National Radiator Conference

THE ANNUAL sales conference, sponsored in mid-March by National Radiator Co., Johnstown, Pa., featured presentation of sixteen new products. Emphasizing a theme of "Sell-Sell-Sell," the three day conference was attended by heating division salesmen from all over the country. After spending two of the days at the New Castle, Pa. plant, the group visited Middletown, Pa., site of the company's steel boiler plant.

Carroll M. Baumgardner, vice president for sales, conducted the discussion periods and stressed the necessity for improved salesmanship, outlining National Radiator's sales training program which has been under way for a number of months. Sales helps viewed were wall posters, dealer mat and electro services and new binders for sales literature. Also visual cast machines and transparencies were shown as available for trade and wholesaler group meetings.

Among new products introduced were copper valves and fittings for forced-flow baseboard and panel heating installations, residential handfired steel boilers, an oilburning boiler, improved gasfired boilers and non-ferrous convectors.

As an illustration of its expanded sales program, announcement was made of the appointment of R. S. Daly as northwestern sales representative and K. G. Shick as eastern Texas representative.

## General Oil Burner Reassigns And Adds To Field Sales Force

REASSIGNMENT of territories and addition of two field representatives to the sales force of General Oil Burner Corp., Baltimore 13, Md., was announced recently by Sales Manager Howard J. Hughes. A. W. Hammill has been reassigned the territory made up of the District of Columbia, Virginia, North and South Carolina and Charles Hight, for fourteen years in the company's customer relations department, was appointed field representative for the New England states. Harold F. Browning has been assigned to New York, New Jersey and Pennsylvania.

Two distributors also were appointed, one, the Great General Supply Co., Madison, Wis., under the direction of Frank Kirk, to handle the General Automatic line in Wisconsin and Minnesota; the other, A. D. Craig, Fort Edward, N. Y., to function in a similar capacity in Vermont and New York.

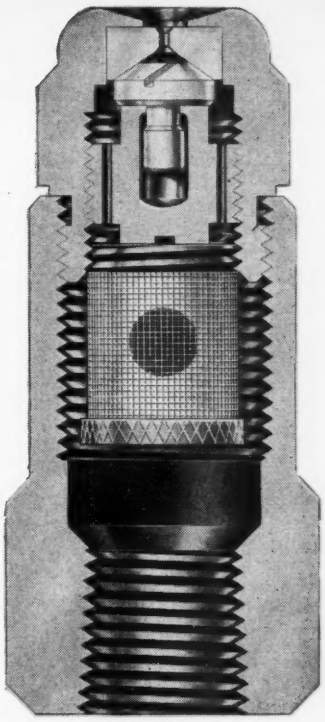
## Metromatic Establishes National Sales Agency

FORMATION of the Metropac Sales Div. of Metromatic Mfg. Co., Everett, Mass., has been announced by Fred D'Angelo, president of Metromatic. The division has been given sales rights for Metropac air conditioner and Metromatic oilburner for all of the United States, except the state of Massachusetts. R. W. Pyne is sales manager and R. A. Sykes, advertising manager, of the new division, which has offices at 135 Main St., Everett 49, Mass.

Four new distributors, announced by the sales division, are Clifford Johnson & Associates, Chicago, Ill., to cover the metropolitan area; Murray & Zimmer,

# Specify DELAVAN Balloffet Design NOZZLES

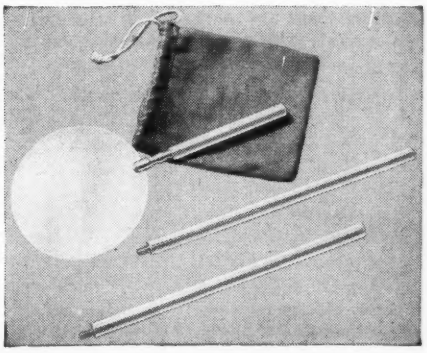
## For Original Equipment and Nozzle Replacements

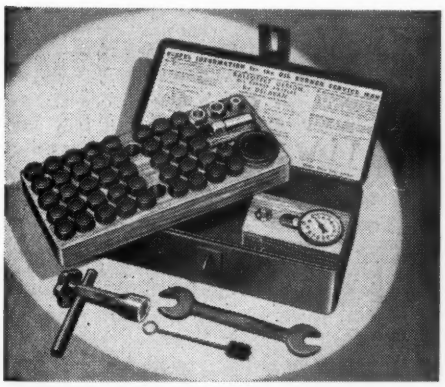


For dependable performance; greater accuracy in rating; better firing results—rely on Balloffet Design Nozzles by Delavan. Delavan nozzles are manufactured to the most rigid standards; individually spray tested and calibrated, and packaged in dust-tight plastic containers. For soft, quiet fires and maximum oil economy, specify Delavan Nozzles.

### INSPECTION MIRROR

A big help for installation and servicemen. Extremely useful for inspecting flame behavior, electrode setting, combustion chamber, flues, etc. Hinged joint permits use of mirror at any angle. Complete in heavy cloth bag, only $2.95.





### SERVICEMAN'S KIT

Sturdy steel case with compartments for nozzle tips, adapters, strainers; also includes ¼" MPT test gauge 0 to 300 PSI; gauge adapter ⅛" FPT to ¼" MPT; Delavan Nozzle Tool; nozzle parts brush; open-end wrench ⅝" and ¾". A real bargain at only $10.00.

### DELAVAN SLUDGE SOLVENT

A new, powerful solvent that is GUARANTEED to keep tanks, lines, strainers and nozzles free of sludge. Safe to use and store; non-toxic; will not harm metal parts of oil burner systems. A real money-maker for oil burner and fuel oil dealers and jobbers.

SEE US at Space 765-767, National Oil Heat Exposition

**DELAVAN ENGINEERING CO.**

*Established 1937 - DES MOINES, IOWA*

DE Co

Port Huron, Mich.; L. K. Younger, St. Cloud, Minn.; Trade Aid, Inc., Norwalk, Conn., for the state of Connecticut and Westchester County, New York.

### Quiet Automatic Completes Showroom Modernization

COMPLETION of the modernization of its dealer showroom at 33-35 Bloomfield Ave., Newark 4, N. J., has been announced by Quiet Automatic Oil Burner Corp. A modern, full-windowed, showroom was built on the front of the company's factory to provide ample space for display of its complete line of conversion oilburners and oil furnaces.

### Winkler Maps Plans For Sales and Advertising

NOW OFFERING a line of Winkler products for all fuels, U. S. Machine Corp., Lebanon, Ind., has launched its twelfth anniversary year with the objective to make it its greatest year in the heating equipment field. Its sales organization has been expanded to forty-three district managers and more than 1,300 retailing outlets, with a recruiting campaign under way to obtain ultimate representation for the company in every American town with a 2,500 or more population. Three plants are owned at Lebanon, a three story warehouse in Chicago and an export office is maintained in New York City.

Winkler's entire district sales force spent a week at the home office this spring to witness a presentation of new products and receive new sales and merchandising tools. In addition to low and high pressure conversion oilburners, oil space heaters, and a complete line of bituminous and anthracite stokers, shown were a new Imperial Deluxe oil floor furnace, new conversion gas burner, and a complete line of new burners and boilers for all fuels.

Key men who appeared during the sales conference were Carl J. Winkler, president; Herman E. Winkler, executive vice president; Claude A. Potts, sales vice president; J. O. Williams, national sales supervisor; Glynn L. Coryell, chief field engineer; Robert C. Hulse, sales promotion manager and Norman J. Gill, advertising director. Wilbur Shaw, three-time winner of the Indianapolis 500 mile race classic, assisted in starting the Winkler Auto Sweepstakes sales contest. Winner of the first leg, completed February 28, was district sales manager Carl Riddle, Conshohocken, Pa.

Upwards of five hundred sales, installation and service personnel are expected to be trained at the Winkler sales-engineering Institute at the factory this year, and regional sales meetings will be conducted during the summer at Chicago, Minneapolis, St. Louis, Boston, Philadelphia and Greensboro, N. C.

### Heat Controller, Inc. Moves To Addison, Mich.

FORMERLY located at Montpelier, Ohio, announcement made by Heat Controller, Inc., indicates it has taken over the plant of the former Addison Mfg. Co. at Addison, Mich.

Paul Wingert is president of the company and in charge of manufacturing operations, John E. Hickory is secretary-


**HOW WOULD YOU LIKE TO SELL A HEATING UNIT THAT NETS YOU *$480.00 PROFIT ON AN AVERAGE SALE THAT COSTS ABOUT ONE THIRD AS MUCH AS TRADITIONAL METHODS AND WHICH THEREFORE CREATES MORE OIL CUSTOMERS AND A BIG BOOST FOR YOUR FUEL OIL SALES?**

*. . . Then Read Announcement On Facing Page*

*Average profit on equipment to furnish required heating of 4400 sq. ft. E.D.R.

# The unit is THERMOBLOC

# The field... INDUSTRIAL

# The future... UNLIMITED!

The importance of THERMOBLOC from the angle of a fuel oil dealer is that the total over-all cost of installing an oil-burning THERMOBLOC Packaged Industrial Heating Unit is approximately ⅓ as much as an equivalent steam or hot water boiler with its piping and radiators or diffusers. More people will therefore be available as customers for installing this type of oil heat than you would find for the traditional methods of heating.

THERMOBLOC appeals to the men responsible for heating Industrial Buildings. It employs a method that is basically economical. It offers low first cost and low operating expense *without* skimping on construction, materials or results.

THERMOBLOC's method is *inherently* efficient. It extracts more heat from a stipulated quantity of fuel because it transfers that heat *direct* to the air stream through a single thickness of metal and, it further economizes by distributing the warm air *direct* from the unit to the working area without the need for piping, duct work, radiation or other expensive installations. QUICK STARTING—INSTANT STOPPING and the elimination of "stand-by" fires all add up to SAVINGS.

**These facts will help you secure desirable orders against competition that is quoting on traditional methods.**

THERMOBLOC has many advantages over other unit heaters and these advantages can often swing orders. It costs less. It handles the warm air more efficiently—keeping it in the working area—not in the roof trusses—and it is easily portable.

### CAN THERMOBLOC FIT INTO YOUR SALES PICTURE?

*If you sell fuel oil and/or install heating equipment, THERMOBLOC may easily become a profitable addition to your business.*

Any commercial or industrial plant is a prospect, for THERMOBLOC is often sold to plants that have a heating system, but need supplemental heat. "Spot" heat—or heat for outlying buildings.

**The small company that buys a prefabricated steel building or a quonset—or builds a simple enclosed area of cinder block—will find THERMOBLOC ideal for such structures.**

When used for heating large, unobstructed areas THERMOBLOC costs much less than other methods. The warm air is discharged direct into the working area, saving the expense of piping or ducts. Part of the output can be ducted off to heat an office or washroom if necessary—but on the whole the expense of a distributing system is saved.

### LARGE PLANTS TOO

You don't have to limit your efforts to small plants. Many large ones can use multiple THERMOBLOC installations—and those mean multiple profits to you.

**If a large plant generates its own power with a Diesel Unit, or buys electricity to run its machinery from a public utility, there will be no need for generating steam, except for heating.**

THERMOBLOC will heat such plants for much less than a steam plant would cost, even allowing enough money for a hot water heater if one is needed for the washrooms.

On large installations your chances for offering savings are endless. THERMOBLOC's over-all efficiency of 82-86% will give a decided advantage on operating costs over the output of a conventional plant.

### DIRECT-FIRED HEAT IS A GROWING TREND!

Direct-Fired Heating for industrial plants has made such strides since the war, that you can be sure it will get an increasing share of the business in the future.

**WHY not learn about THERMOBLOC so that you can sell with this new trend and get your share of additional oil business as well as profit from the unit.**

### NO INVENTORY

A THERMOBLOC distributor will take the inventory load off your shoulders. All you have to do is to be on the alert to sell THERMOBLOC and the dealer profit of $180 to $240 per unit (depending on size) will be yours.

And you'll get first crack at the fuel oil too! That means more Fuel Oil Sales.

### SEE THERMOBLOC AT THE OHI SHOW—BOOTH 591

Get in touch with us quickly. The number of dealers added under this plan will be limited. First come—first served in each territory.

# THERMOBLOC

**Division of PRAT-DANIEL CORPORATION, East Port Chester, Conn.**

***Manufacturers of Thermix Power Equipment***

treasurer. Heat Controller is producing the Comfort-aire furnace unit, available in horizontal and vertical gravity or winter air conditioning models, bonnet capacities of 65,000 and 55,000 Btu/hr. The unit features compactness that permits placement between floor joists, suspension from ceiling, mounting on wall platforms or convention floor installation.

### Sohio Booklet Is Home Owner's Oilburner Guide

REFLECTING confidence in the future supply of fueloil and the demand for domestic oilheating, Standard Oil Co. (Ohio), has announced publication of a new Home Owner's Guide to Solid Comfort booklet.

Offered free of charge by the Sohio Heat Sales Dept., Cleveland, Ohio, the booklet has been designed to answer many of the questions concerning the use of fueloil for home heating, written in non-technical language. The department reveals also establishment of a corps of heating experts to assist in solving heating problems encountered by families building homes or contemplating changing their present system.

### Boston Machine Holding Dealer Sales Meetings

A SERIES of meetings, sponsored by Boston Machine Works Co., Lynn, Mass., has been held in the east and middle west during March and April. I. M. Nelson of the company's sales-engineering staff spoke at each of the meetings, emphasizing the vital part that efficient installation plays in the present and future of domestic oilheating.

Stressing the part that the BOSMACO line plays in achieving this objective, Mr. Nelson illustrated his talk with diagrams of heating systems and pointed out the critical points in an installation which affect efficiency.

More than one thousand dealers, salesmen, heating engineers and service men have attended the sessions. A review of the construction and application of Apthorp nozzles, steel baffles, Clearview oil tank gauges, Instant-Glo combustion chambers, Boston-Standard draft controls, nozzle service kits and nozzle extractor, all BOSMACO items, highlighted Mr. Nelson's talks.

After each meeting an active question period was held.

### Automatic Controls Save Fuel Michelson Tells Oil Men

FUEL SAVINGS of 3.2% for each degree of lower temperature are made possible by modern automatic controls, Arnold Michelson, vice-president of Minneapolis-Honeywell told the Eleventh Annual Meeting of the Fuel Oil Distributors Association of New Jersey at Asbury Park, April 29. The talk outlined the history of the oilheating industry, and indicated that the growth and expansion of the business would not have been possible without automatic controls.

"Controlled tests have proved that for each degree of temperature saved in the home you can save 3.2% on the annual fuel bill," Mr. Michaelson said. "And the best part of the deal is that the homeowner can save this money without any inconvenience to himself. Modern clock thermostats, which turn down the heating plant at bedtime and turn it up again in the morning, take care of the whole operation automatically."

"When we promoted you to field manager, Jordan, this isn't exactly what we had in mind!"

*Robin A. Bell* has become general sales manager of the combined aircraft-automotive and domestic-commercial heating divisions, Surface Combustion Corp., Toledo, Ohio. Other changes precipitated by *Eugene A. Weaver* leaving the company to become manufacturers agent for Janitrol domestic-commercial equipment in Michigan, saw *Harry C. Gurney*, western sales manager, domestic-commercial heating division, become sales manager of this division and *James W. Ashby* become sales manager, aircraft-automotive division. William J. Grover, marketing director for all sales divisions, will devote an increased portion of his time to market research and retail sales planning activities.

# Sees Need for Greater Crude Production before End of Year

CURRENT OVERSUPPLY in the petroleum industry is likely to be shortlived according to figures presented to the National Petroleum Association's semi-annual meeting at Cleveland, by Richard J. Gonzalez, economist for Humble Oil & Refining Co., Houston. He predicted that demand for oil products this year would be 3% to 5% greater than 1948, and that production the last half of this year would have to be close to the record high rate of late 1948.

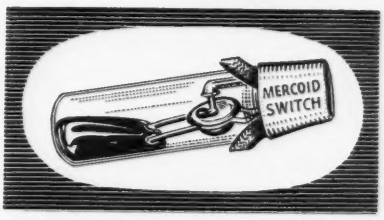
Mr. Gonzalez estimated gasoline demand would increase at least 5% this year, and distillate fuels would increase 8% to 12%, but he saw little increase in residual demand. He pointed out that crude oil production averaged 5,325,000 barrels a day in the first quarter this year, and will average about 5,000,000 barrels a day this month. If the average for the second quarter is 5,125,000 a day for the second quarter, Mr. Gonzalez estimated production required in the last half of 1949 at 5,400,000 barrels a day, approaching the record high average of 5,858,000 barrels daily in the last half of last year. Present stocks of crude and products, he said, are not badly out of line when the greater demand is considered.

The outlook for the immediate future presents some difficult problems, Mr. Gonzalez said, in adjusting refinery yields to meet widely different trends in product demand, but he saw a high level of demand for petroleum products beyond the near future, barring a major recession in business.

Meanwhile residual output in the East and Gulf has hit the lowest level since September 1945. Residual yield in these areas during the week ended April 9 was down to 19.5% compared with 22.4% a year ago. Stocks are nearly 6,000,000 barrels above the spring levels of 1948.

# A GOOD BUY

## in Stack Safety Controls

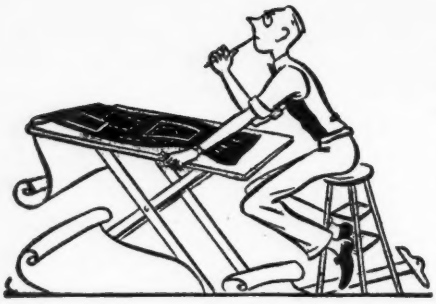



*Completely equipped with Mercury Switches They assure greater safety, better performance and much longer control life*

SEE THEM AT THE SHOW
IN BOSTON
MAY 16-20
☆
BOOTH 658

THE MERCOID CORPORATION ◆ 4201 BELMONT AVE ◆ CHICAGO, ILLINOIS

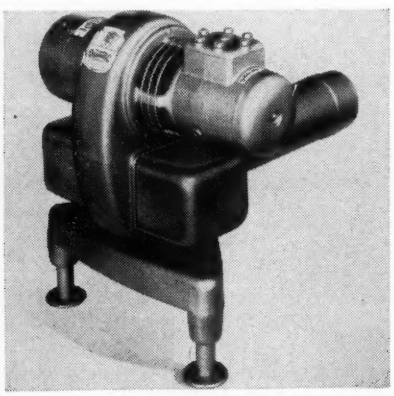
fueloil & oil heat



# New Products

## Oil-O-Matic Releases Nine-Piece Redesigned Line

NINE NEW PIECES of oilheating equipment, spearheaded by the completely redesigned "Fifty-Ten" low pressure oilburner, were shown to Williams Oil-O-Matic dealers during April and May meetings, coast to coast. Besides the new low pressure burner and a new high pressure model, the new line contains



five winter airconditioning models in capacities from 70,000 to 150,000 Btu, a cast iron boiler unit in four sizes and a 300-foot steel boiler unit.

As long rumored, the new Oil-O-Matic low pressure burner is completely redone. Its capacity, from 0.5 to 3.0 gph, replaces two previous models and eliminates 154 parts formerly required in each of the older models. Gear pump, atomizing pump, metering pump and pressure regulator all are contained in a sealed Thrift Meter which can be removed and replaced by removing three screws. The fan (Vair-O-Meter) has a sliding disc at right angles to the fan shaft which regulates the effective surface of the blower wheel blades. The motor is a capacitor start, 3450 rpm motor built by the company and tailored to this particular unit. Oil is fed to the unit through a hydraulic pressure regulator which allows oil to flow as long as motor speed is above 2800 rpm. As the speed drops below 2800 rpm the valve closes while the fan coasts to a stop, purging the lines. Air flow is established on the start before the oil valve is opened.

The "Fifty-Ten" will be sold as a conversion burner and used on all units. A saving up to 20% is claimed for this low pressure model, since it is claimed to have an average flame temperature 250 to 300 degrees higher than other burners.

In the high pressure field, Williams presented the new Model A burner. New features include an improved fan housing which materially increases air supply efficiency, a new built-in antihum device on the fuel unit for quieter operation, a new split-phase motor with overload protection, a built-in radio interference filter, and new styling by George Walker, who also designed the "Fifty-Ten."

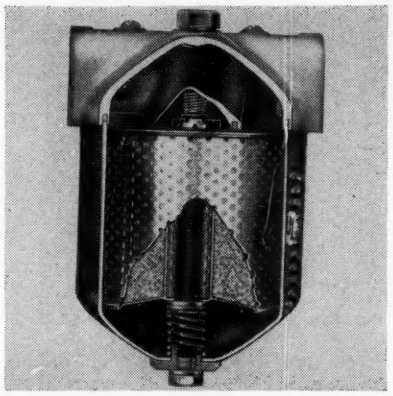
## Remotamatic Unit Controls Truck Pump From Hose Nozzle

REMOTAMATIC nozzle pump control, just announced by Scully Signal Co., Cambridge 41, Mass., consists of a small black box approximately 8" long by 6" wide and 4" deep. It is installed on a fueloil truck and makes possible the control of pump and truck engine operation from the hose nozzle. In this way the pump and truck mechanisms need be operated only while oil is actually flowing through the hose nozzle and use of by-pass valves and unproductive motor idling is eliminated.

The impulse that actuates the device is the opening and closing of the gun nozzle lever. Its installation, either under the truck dash or hood, is easily and inexpensively accomplished.

## Fram Oil Filters In Three New Sizes

FOR PERMANENT INSTALLATION in fueloil lines and featuring replaceable cartridges, three models have been added to the line of Fram Corp., Providence 16, R. I. Model F1210 is designed for use on installations using 2,000 gallons of oil per year; model F1211 on 4,000 gallon installations and model F1212 on larger systems where consumption totals 6,000 gals. per year.



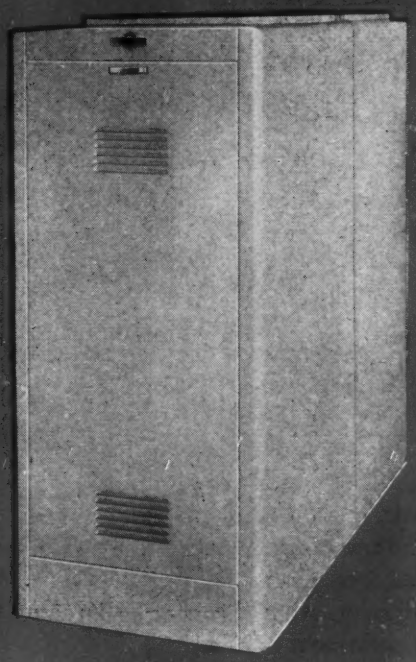
Under normal operating conditions the filtering mediums of the units are said to need replacement only once a year. Fram engineers developed a new filtering media, used in the units, to remove dirt, water, gum, scale or rust that accumulates during the transfer or storage of fueloil. Eash filtering unit has its companion replacement cartridge, made to fit the shells which measure 5-11/16", 7⅞" and 10⅛" overall height from the smallest to the largest of the new models.

## Timken's Oil Boiler For Kitchen Installation

KITCHEN-TYPE oilburner, announced by Timken Silent Automatic Div., Timken-Detroit Axle Co., Jackson, Mich., eliminates the need for a utility room and provides additional kitchen counter space. Finished in white enamel, the unit combines a house-heating boiler, fired by Timken's wall flame oilburner, instantaneous water heater, expansion tank, motorized circulating pump, tempering valve and automatic controls.

It is made in two sizes to provide heat and domestic hot water for four and five-room homes. The smaller model occupies a floor area of 25 x 30 ins., the

# MAYFLOWER



Series "DOL" Winter Air Conditioner

## *A Lifetime Investment*

Every Mayflower distributor brings to his customers a lifetime investment in the three essentials of a heating plant—Quality • Beauty • Economy.

His Mayflower franchise gives him this EXCLUSIVE right in his territory—at an attractive profit.

**MAYFLOWER AIR-CONDITIONERS, INC.— ST. PAUL 6, MINNESOTA**

larger unit, 36 by 36 ins. Both units are entirely enclosed in a counter high cabinet, with stainless steel work surface on top, and can be used with radiator or radiant hot water heating systems.

### Heil Hydraulic Tailgate Handles Up To One Ton

HEILOADER, hydraulic tailgate lift produced by Heil Co., Milwaukee, Wis., lifts up to 2000 lbs. from the ground to 50", or intermediate height, in 10 seconds. There are no chains or protruding mechanisms on the unit and full ground clearance is maintained because the installation is above the clearance point of the truck axle.

Capable of mounting on standard trucks of 1½ ton or larger capacity, the gate is designed to descend by gravity, stopping automatically upon touching a platform, curb or the ground.

### Alert Automatic Boiler Self-Contained on Bed Plate

ALERT AUTOMATIC boilers, manufactured by Alert Engineering Products, Detroit 26, Mich., are packaged units, completely automatic, containing all fittings, controls, pump and condensate return system attached, interpiped and interwired before shipment. All elements are mounted on a permanent steel bed plate. Ratings range from 2 to 50 hp. and the boilers may be fired with gas, bottled gas or fueloil.

Upon delivery it is necessary only to remove the packing box and slide the boiler into place. Connection with steam, water and fuel lines and plugging in its extension cord into an electrical outlet, completes the installation and the unit is ready to fire. It requires no foundation and only a stove pipe flue.

### Escort Hand Trucks With Caterpillar Treads

A LINE of Escort hand trucks, announced by Associated Services, Springfield, Ill., feature two caterpillar treads near the wheels, permitting a single operator to transport easily heavy loads over curbings, or similar obstructions, up a flight of stairs. The caterpillar tread rotates on rollers set in an aluminum frame and the load on the truck is distributed evenly from step to step to facilitate handling up or down, without slipping or bumping.

Various models are available, with the largest capable of carrying 1500 lbs. All are equipped with the crawler treads, and one model features a swivel wheel, which when dropped in place allows the unit to be rolled without weight on the operator. Models are offered in wood, aluminum and steel.

### Tjernlund Quick Heat Winter Air Conditioners

A LINE of Quick Heat winter air conditioning units, made by Tjernlund Mfg. Co., St. Paul 8, Minn., are offered in four sizes for domestic use. Employing counter-flow heat-extracting flues, the units achieve a high degree of air wipage of heating surfaces. Bonnet capacities for the units range from 82,800 and 103,500 for the smallest size when fired with .75 or 1.0 gph nozzles to 149,040 and 180,000 for model 2000, the largest, when equipped with 1.35 or 1.65 gph nozzles.

Oilfired models are equipped with a pressure atomizing type burner, provided with one set screw to remove the nozzle


*An Unparalleled Achievement In Automatic Oil Heating!*

***Excerpts from letters from the field offer conclusive evidence that the Commodore is everything claimed for it.***

★ "We know, and are reasonably sure you will appreciate knowing, how little service and replacement parts we have had to render to our dealer organization during the ten years we have handled Beckett Commodores."

*Mormile Plumbing & Heating, Amsterdam, N. Y.*

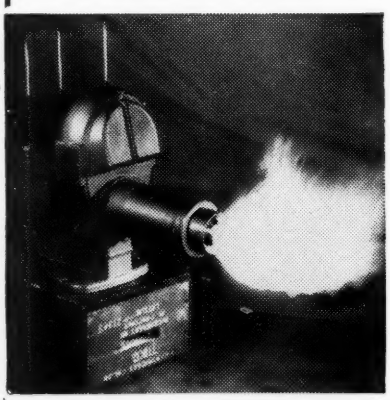
★ "We sold Beckett burners about ten years ago, and the job in our office is still knocking it off perfectly without a single replacement part after eleven years burning 4000 to 4500 gallons of oil per year."

*E. E. Souther Iron Company, St. Louis, Mo.*

★ "Our experience in the sale of Beckett Commodore burners has been so satisfactory that we thought we might tell you about this and compliment you upon the excellent product. For a period of over 10 years we have had excellent results with your burners and have had no complaints in connection with any that we have sold."

*Marsden & Wasserman, Hartford, Conn.*

**BURNING IN SUSPENSION IN OPEN AIR**
**1. Without aid of firebox—**
**2. Ignition cut-off—**
**3. Normal flame retained.**



**Here the Commodore balances pencils to demonstrate its vibrationless operation . . . its absolute alignment. Worn bearings, noise, leaks in the fuel unit, costly repairs, service charges . . . may result from vibration.**

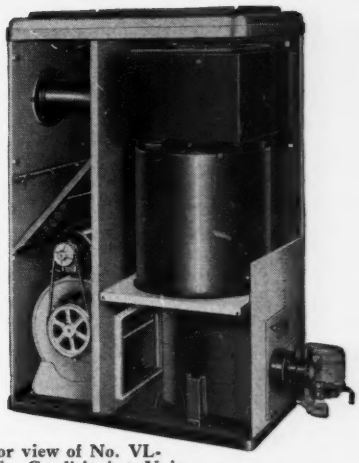
**Beckett**
**COMMODORE**
**Oil Burners**

Sixteen U. S. and Foreign Patents prove COMMODORE principles must be different. Easily burns Catalytic oils at higher efficiencies . . . nozzles remain cool to the touch.
***Models ¾ to 13 gallons.***

**R. W. BECKETT CORP.**
Elyria, Ohio

# "Rounding-Out"

## the GREATEST line of Heating Equipment with the NEW MONCRIEF Pressure Vaporizing Oil Fired Units



Interior view of No. VL-65 Air Conditioning Unit.

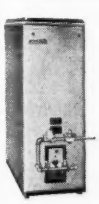
No. VL-65 Air Conditioning Unit 76,000 Btu Output.

- *Moderately Priced!*
- *Good Looking!*
- *High Quality!*
- *Approved for No.3 Oil!*
- *Easy Servicing Features!*
- *Factory Assembled!*

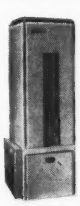
No. VU-75 Utility Unit 75,100 Btu Output.

No. VW-61 Gravity Furnace 60,600 Btu at Register.

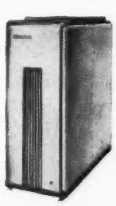
**Write for *NEW* Colorful Descriptive Literature.**
**See your MONCRIEF Jobber for Complete Information.**



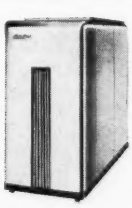
Series W Gas-Fired, Steel Gravity Furnace.



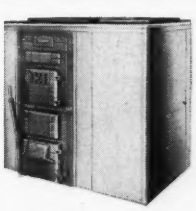
Series U Gas-Fired, Steel Utility Air Conditioning Unit.



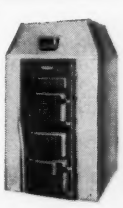
Series L Gas-Fired, Steel, Air Conditioning Unit.



Series P Gun-Oil-Fired, Steel Air Conditioning Unit.



Series AC-700-F Coal-Fired, Steel Air Conditioning Unit.



Series 700 Coal-Fired, Steel Gravity Furnace.

Series C Coal-Fired, Cast Iron Gravity Furnace.

## THE HENRY FURNACE COMPANY

**Medina, Ohio**

HEATING AND AIR CONDITIONING UNITS — MONCRIEF SINCE 1895 — FURNACE PIPE AND FITTINGS

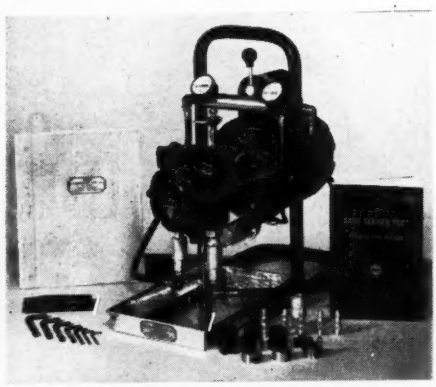
fueloil & oil heat

assembly without disturbing electrodes. All models are shipped with stainless steel combustion chambers.

Eight models also are available as self-contained unit heaters for wall or ceiling installation. Capacities for these units range from 141,000 to 705,000 Btu input.

## Fuel Unit Tester Redesigned By Oil Equipment Mfg. Corp.

OILBURNER fuel unit testers, product of Oil Equipment Mfg. Corp., New Haven 6, Conn., have been redesigned to permit testing all popular make pumps,



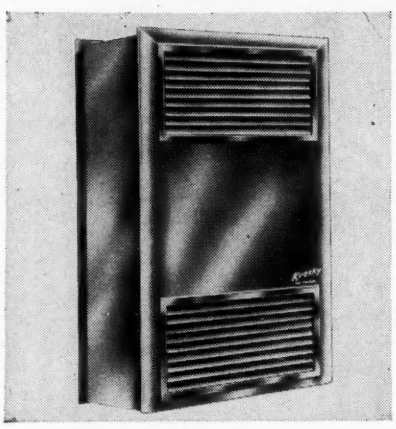
fuel units or pressure valves. The unit consists of an oil reservoir and motor to drive the pumps being tested. Operating under simulated field conditions, in a hook-up complete with feed and return lines and discharge through a nozzle, pressure and vacuum readings are obtained from built-in gauges.

Furnished with each tester is a catalog of parts and sources of supply for pumps and fuel units, and a copy of OHI's "Basic Service Test."

## Kresky Oilfired Wall Furnace Consumes Maximum of .5 Gph

RATED at 62,500 Btu output, an oilfired wall furnace added to the line of Kresky Mfg. Co., Petaluma, Calif., consumes a maximum of .5 gph and is fired with Kresky's patented forced air induction oilburner. When installed the measurements of the unit are 56½" high, 33⅜" wide. The inside thickness of the furnace is 17", 19½" overall.

Designed to deliver heat to both sides of the wall in which installed, it is possible to divert heat only to a part of the house by closing one side. On each side of the furnace is an upper and lower louvre, cold air being drawn in through the bottom and warm air discharged



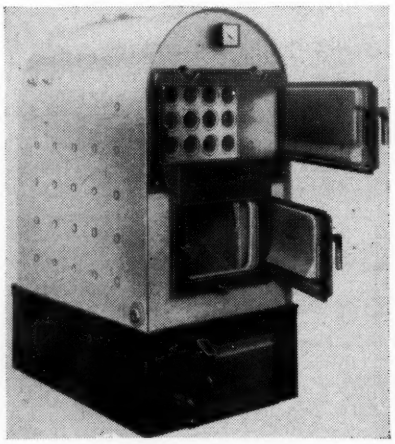
through the upper outlets. Top and side are insulated. Servicing is accomplished by removing the lower louvre on one side, exposing oil valves, cups, motor and blower. The burner features a variable speed control head to regulate the proper amount of combustion air.

## Ridge Tool Develops Drive For Hand-Power Pipe Tools

A POWER DRIVE for operating hand pipe cutters, threaders and reamers, announced by Ridge Tool Co., Elyria, Ohio, weighs only 100 lbs., measures 19¼" x 18" at the base and stands 12" high. It is mountable on standard pipe legs and has a capacity from ⅛" to 2" pipe and up to 8" pipe when used with the Ridgid universal drive shaft. Porta-Power Drives plug into any 110 AC light socket and employ a reversible motor.

## National Announces Nine Sizes Of Steel Boilers

NINE SIZES of residential steel boilers designed for handfiring have been announced by National Radiator Co., Johnstown, Pa. The 26, 29 and 39 in. units have net ratings from 570 to 2480 sq. ft. of steam radiation, 910 to 3970

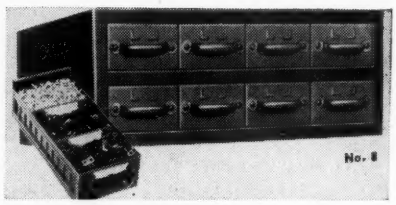


sq. ft. of hot water, and are readily convertible to oilfiring.

The boilers feature a combination of double pass construction, individual 3" diameter steel tubes and large fireboxes. The company explains the design of the boilers as employing a true-arch crown sheet to prevent deposits of heat-insulating sludge and upward flaring water legs, concentrating a large volume of water adjacent to the hottest portion of the fireobx. Jackets can be furnished for the units, which have been constructed to conform to the requirements of the ASME Code and rated under SBI requirements.

## Equipto Steel Drawer Cabinets For Small Parts

EQUIPTO, Div., Aurora Equipto Co., Aurora, Ill., announces two units for storage of washers, screws, nuts, bolts



and similar small pieces. No. 11 steel cabinet has 18 drawers, each with 3 cross dividers, giving 72 adjustable compartments. Overall size is 34" wide, 13¾" high, 12" deep. Individual drawers measure 11⅞" x 5⅜" x 3⅛" high. No. 8 has 8 drawers, each with 2 cross dividers, providing 3 adjustable compartments per drawer. Drawer size is the same as for the larger unit.

## S-N Radiant System Distributes Between Floors And Ceilings

A RADIANT heating system, developed by Scott-Newcomb, Inc., St. Louis, Mo., consists of either a steam or hot water boiler, containing a tankless hot water coil for domestic water supply. When heat is required a thermostat starts a water circulator, when a hot water boiler is being employed, and pumps heated water through a heat exchanger. The heat exchanger coil, generally located at the bottom of a duct near the basement floor, discharges heated air into a vertical duct that reaches to the first floor ceiling, where the air is distributed in all directions over the entire ceiling area. Air is returned to the basement

*You Are Cordially Invited*

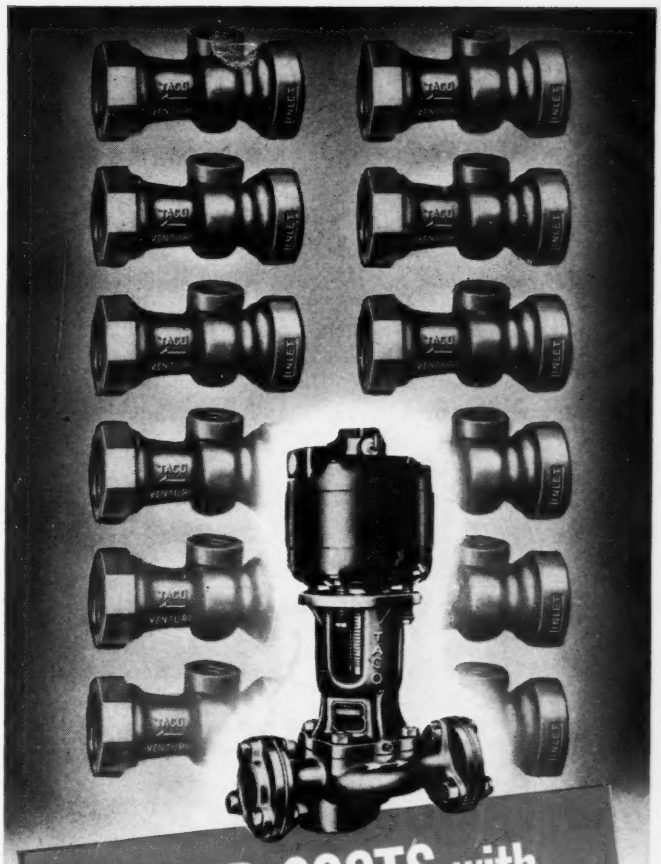
The Tuthill organization cordially invites you to visit their showing of the 1950 Fuelstats* in Space 786 at the 26th Annual Oil Heat Exposition in Boston, May 16 to 20.

**Tuthill*

*These quiet, leakfree Fuelstats are now available for immediate delivery.*

**TUTHILL PUMP COMPANY**

939 East 95th Street, Chicago 19, Illinois




## "TACO-ONE" VENTURI PACKAGES

**SPECIAL COMBINATION PRICE FOR ONE TACO CIRCULATOR AND TWELVE TACO VENTURI FITTINGS**

Save money. Buy "Taco-One" Venturi packages (one circulator and twelve venturi fittings). Prevent temperature drop headaches by using the circulator and special fittings that were designed to work together. Make sure the last radiator on the circuit works as quickly and satisfactorily as the first.

You use only one special Taco Venturi fitting to a radiator (on the return only). Use an ordinary tee on the supply. Use the same venturi fitting for above or below main radiators.

*"Better Heating-Better with Taco"*

TACO-ABBOTT SYSTEM Taco

**TACO HEATERS, Incorporated**

**137 South Street, Providence 3, R. I.**

through spaces between the vertical studs in the outside walls. Using a steam boiler, a steam heat exchanger coil would be mounted directly above the boiler and attached to the basement joist. By sealing the basement ceiling the air can be returned directly to the coil and warm the basement by radiant heat.

In one story houses basements may be heated in a similar manner, and it is possible to heat the ceiling of a one story house without a basement by locating the boiler and heat exchanger in a utility room or attic space. The vertical heat shaft is located as near the center of the building as possible, insulated on both sides, with walls of "Transite" or "Masonite." A small metal door, held open by a fusible link, is installed on all air returns and a similar door is used above the heat exchanger coil.

Return ducts, the space between vertical studs and located on outside walls, quickly respond to outside weather changes, without use of instruments. Descriptive literature on the systems explains that if a cold wind blows against one side of the house, return ducts will be chilled causing the air in the ducts to drop rapidly and pull warm air over the ceiling in that area. And, if the sun should warm up the opposite side of the house at the same time, it is pointed out that there will be little flow of heat in that area. No air blowers or filters are employed. When rooms on the second floor are to be heated no insulation is installed under the floors, but ceiling and side walls of the second floor are insulated under such conditions. Recommended for use either in existing or new homes, more than one partition space can be used as the vertical heat duct, and where the building covers a large area more than one heat exchanger may be used.


NO CIRCUS

At The 5th Annual

SID HARVEY OPEN HOUSE
and TROUBLE SHOOTING SCHOOL

BUT MANY NEW NEVER-TO-BE-FORGOTTEN FEATURES AND EXHIBITS INCLUDING

"PROFIT FORUM"
*(First Time Under Any Sponsorship)*

STELLAR DEMONSTRATIONS OF SERVICE PROBLEMS THAT HAVE ATTRACTED SOME 3,000 OIL BURNER DEALERS AND SERVICE MEN IN THE PAST. AN INTIMATE BEHIND-THE-SCENES—PERSONALLY CONDUCTED TOUR OF THE WORLD'S LARGEST PLANT DEVOTED TO RECONDITIONING OF OIL BURNER PARTS—SEE WHY THEY ARE BETTER THAN NEW—

**JUNE 6th to 30th** (except Friday and weekends)

RESERVATIONS NECESSARY
Program 10:00 A.M. to 3:00 P.M.

We will start you on a guided tour of our facilities at 10:00 in the morning and will finish up so that you can be through by 3:00 P.M. Those wishing to stay are welcome to do so.

Write for a reservation date on your letterhead. Please give a choice of several dates, if possible—Give us the names of all those who will be in your party. Will confirm promptly. Valley Stream is on the Long Island, 29 minutes from Penn Station.

***RSVP—and quickly, as we had to refuse many late-comers last year.***

10% DISCOUNT DURING SCHOOL

Should you wish to buy anything we have in stock on the day of your visit, we will extend you a flat 10% courtesy discount beyond regular trade prices as our contribution towards your expense. This offer applies to everything we have in stock including rebuilt items. Load-up your car with your winter accumulation of defective pumps, motors, transformers, controls, etc. and take back rebuilt exchanged items and save transportation charges both ways too.

ALL VISITORS WILL BE THE GUEST OF SID HARVEY, INC. AT LUNCHEON AT NOON.

SID HARVEY, INC., VALLEY STREAM, LONG ISLAND, N. Y.

## Acme Electric Develops Oilburner Ignition Transformer

FEATURING cores of high grade silicon steel, a new oilburner ignition transformer has been announced by Acme Electric Corp., Cuba, N. Y. Represented as furnishing a secondary current of sufficient intensity to ignite the lowest viscosity commercial and residential fueloils, the transformers include built-in radio and television interference eliminators. Cores are assembled with vacuum impregnated coils in a waterproof and splash-proof casing and sealed in a special heat and moisture resisting compound.

## Detrick Insuliner For Use In Hot Ducts

INSULINER, a product of M. H. Detrick Co., Chicago 2, Ill., is described as block insulation supported by a system of bars held in position by bolts welded to the steel shell. Insulation then is covered with an Insuliner cement, which is a protective coating and resists a reasonable amount of abrasion. Recommended for application to breechings, flues or ducts, Insuliner blocks are furnished in 12″ x 24″ sizes, castings in sizes for roof, side and floor use.

## Heatrem Aluminum Paint For Use On Metal Surfaces

SPECO, INC., Cleveland 14, Ohio, announces production of a new high-heat resisting aluminum paint for use on exterior and interior metal surfaces, wood,

# WHAT NEXT!

## HOW GOOD CAN AN OIL BURNER BE?

## YOU'LL SOON FIND OUT FROM

Gilbarco

MAKERS OF THE

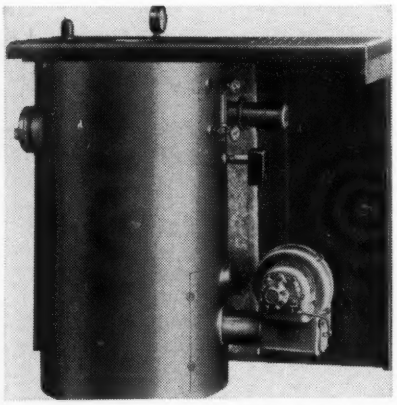
FAMOUS ECONOMY CLUTCH OIL BURNER

brick or concrete surfaces exposed to extreme heat. Heatrem is reputed to set up in 4 hrs. and dry completely overnight to form a bright, elastic finish that resists moisture, corrosion, acids, alkalis and industrial fumes.

It is recommended for painting boilers, furnaces, steam lines and similar applications where heat ranges between 1000° and 1500° F. The paint is packaged in half pint, pint, quart, gallon and 5 gallon cans.

## Delta Distributing Oilfired Boiler-Burner Unit

FIVE SIZES of Delta oilfired boiler-burner units now are being distributed by Delta Heating Corp., Jackson Heights, N. Y., with net ratings from 400 to 1100 sq.



ft. of steam, 640 to 1760 sq. ft. of hot water radiation. The unit is furnished with necessary gauges, controls and fittings, is of marine boiler design, insulated with 1½" of rock wool. Low water content and high heat transfer are advanced as reasons for the unit's quick-steaming ability.

Included is a finned copper instantaneous tankless water heater coil to provide domestic service water. Floating baffles are located within the boiler tubes, which range in number from 8 for the small size to 28 for the biggest model. Heating surface measures 24, 32, 41, 53 and 65 for all five sizes, which are fired at gph rates of 1, 1.5, 2.0, 2.5 and 3.0.

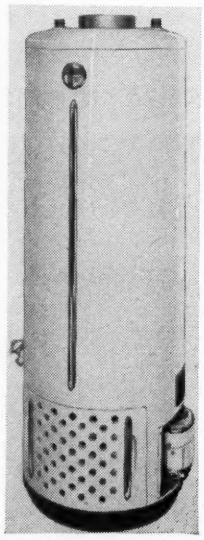
## New General Oil Burner Floorline Baseboard Units

ADDITION of floorline hot water baseboard radiation to its General Automatic line of oilheating equipment has been announced by General Oil Burner Corp., Baltimore 13, Md. Designed to replace cast-iron radiation and for new home installations, the units consist of fin type copper tubing, ¾" in diameter, covered with a metal panel 6" high. Its exterior resembles ordinary wood baseboard, which it replaces, and the top is finished with an all steel moulding. Jutting out from the wall 2⅛", floorline units are manufactured in 10 ft. lengths, finished with a prime coat of paint, which can be refinished to correspond to the color scheme of the home.

Five packages are available, with parts for a complete installation. Package No. 60 is for installations of 200 sq. ft. radiation; No. 70 for 233 sq. ft.; No. 80 for 263 sq. ft.; No. 90 for 300 sq. ft. and No. 100, the largest, for use where radiation requirements total 333 sq. ft.

## Pro-Therm Oilfired Water Heaters Made In Two Sizes

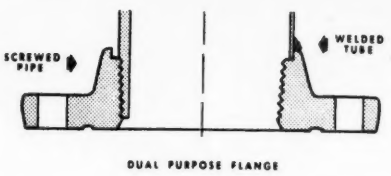
TWO SIZES, 30 and 50 gal. capacities, of Pro-Therm automatic oilfired water heaters are offered by Thermo-Products, Inc., North Judson, Ind. Overall height of the units is 53", with casing diameters measuring 18" for the 30 gal. size, 22" for the larger model. The unit's oil metering control, which includes an automatic shut-off valve, is recessed in the casing, but accessible for service and adjustment.



Fiberglas insulation covers the top of the heater, with corrugated asbestos applied to form three air spaces on the sides. A manual temperature adjustment knob for regulation of water temperature desired, combination draft regulator and lighting door are standard equipment.

## Smith Truck Meters With Forged Steel Flanges

SMITH METER CO., Los Angeles, Cal., announces that all three of its truck meters are being furnished with forged steel inlet flanges, instead of cast-iron



DUAL PURPOSE FLANGE

flanges. Installations now may be made with tubing welded directly to flanges or within screwed pipe at the users' option. A growing trend to the use of welded tubing, because of higher speed deliveries due to larger interior bores, smoother bends and less friction, prompted the company to make the change.

## Quiet Heet Marketing Window Air Conditioner

QUIET KOOL is the trade name of a room air conditioner, designed for window sill installation, and produced by Quiet-Heet Mfg. Corp., Newark, N. J. Model G-5 employs a ½ hp hermetic compressor unit and is rated at 5850 Btu/hr. Direction of air, circulated by a single fan motor operating at 1075 rpm, may be altered to suit individual room requirements. A steel casing, projecting 9¾" into the room, encases the unit, provided with a hinged cover to facilitate changing the air filter.

## Fireye FF-3 System Guards Against Burner Flame Failure

FIREYE SYSTEM FF-3, a product of Combustion Control Corp., Cambridge 42, Mass., includes a photoelectric scanner and control to guard against flame failure on semi-automatic and manually ignited industrial oilburners.

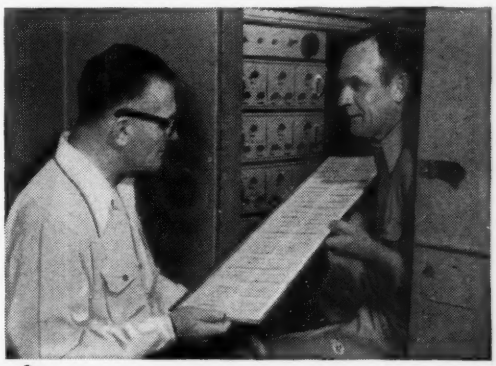
The scanner consists of phototube

and vacuum tube amplifier in a dust-tight aluminum case, to be mounted on the burner plate so that it has a clear view of the oil flame. It monitors the oil flame and if failure occurs signals the control which cuts off the fuel supply and sounds an alarm. The control consists of two relays, a power trans-

## GEORGE FAILING'S SMART IDEA!

**He invents a portable "divining rod" that helps bring in thousands of oil gushers all over the world!**

**TWO OIL EXPLORATION METHODS** now widely used were made more practical by George Failing's revolutionary idea. In one method of exploration, an earth-drill picks up samples (cores) from different strata for study by geologists. In another, dynamite charges are set off in a hole, and the effects are studied by seismograph. With either method, fast, low-cost drilling is a "must." That's what Failing gave oil men in 1931 with the portable drill he mounted on an old Ford Pickup Truck. With this he could set up and drill as many as 12 holes in a day. Former drills required a week for setup alone.



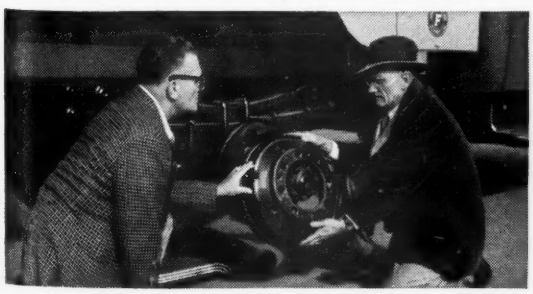
**GEORGE FAILING** with seismograph expert, Ray Welch of the Seismograph Service Corp. The seismograph records data on the effects of the underground explosion. Welch interprets this data to locate underground traps for oil or gas.

**THERE SHE GOES!** A charge of dynamite is set off in a hole drilled by Failing equipment mounted on a Ford Truck. George Failing's idea has become a multimillion-dollar business for Enid, Oklahoma.

## GEORGE FAILING'S SMART MOVE!

**He uses 5 Ford Bonus Built Trucks in his own business, has equipped thousands of others with drills!**

**"OIL FIELD GUMBO** is a real test for a truck," Jess Page, (right) the Ford Dealer's service manager tells George Failing. "And this 145-h.p. V-8, biggest Ford Truck engine ever built, has power to pull you through and to keep the drills running steadily."



**"THIS FEATURE IS A KNOCKOUT.** The brake drums are not one piece with the hubs. They're separate, and removable. This simplifies brake maintenance, and cuts replacement costs because you don't have to buy a wheel when you want a brake drum only."

**"HERE'S MY LATEST** drill mounted on a new Ford F-7 Big Job," George Failing remarks to Ford Dealer L. A. Neal. "If it works as long as my original 1932 model Ford, it'll still be going strong in 1966." Replies Neal, "Ford Trucks are built extra strong to last longer, Mr. Failing. They're built to take it. There are over 139 Ford Truck models, every one Bonus Built with big strength reserves."

## GEORGE FAILING'S SMART BET!

## FORD TRUCKS LAST LONGER!

*Using latest registration data*

*on 5,444,000 trucks, life insurance experts prove Ford Trucks last longer!*

fuel oil & oil heat

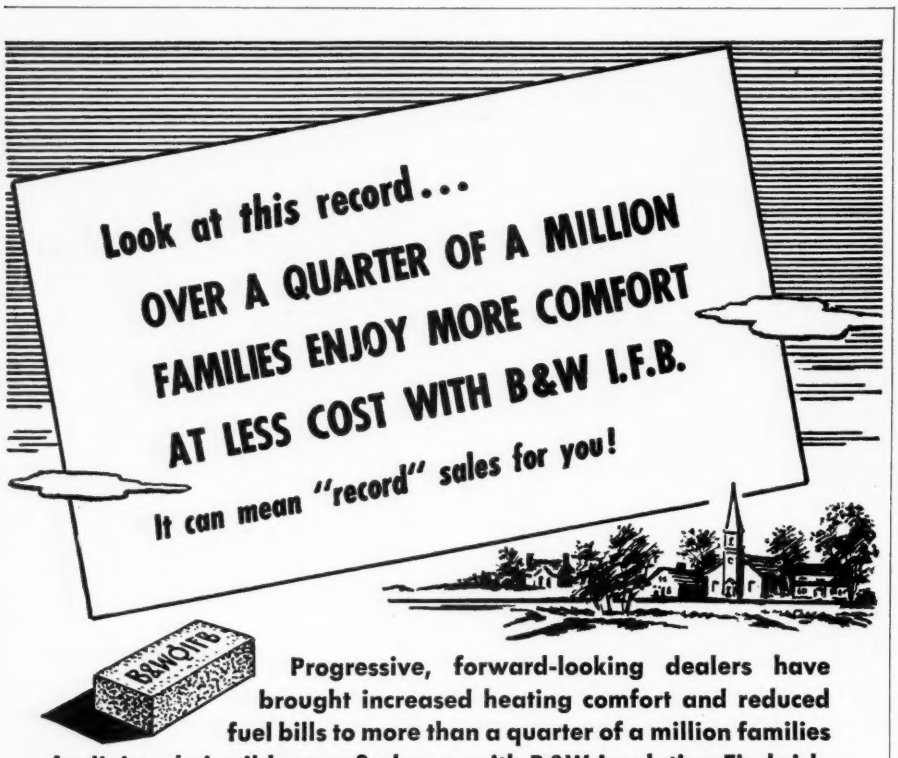
former and a safety start circuit to prevent cycling if flame is detected or simulated prior to ignition. It is mounted on the burner control panel.

### Carpenter Bull-Dog Valves Employ Steel Ball Seat

BULL-DOG valves, developed by Carpenter Mfg. Corp., Cleveland 2, Ohio, use a precision ground stainless steel ball seat, installed with a slight clearance so that it spins when the valve is opened or closed and so finds a new seat each time. Valves are available at present in brass, in 1/2" and 3/4" pipe sizes. "O" ring seals are supplied for normal service and conventional packing for valves installed in steam or other high temperature service.

### E-Z Life Oilburner Is Forced Draft Vaporizer

E-Z LIFE oilburner, offered by Trenton Heating Mfg. Corp., Trenton, Mich., is a forced draft vaporizing type conversion oilburner, featuring a special method of mixing preheated air with vaporized oil. Approved by Underwriters' Laboratories as a Commercial Standards burner, capacities range from .6 to 1.0 gph. Burners are shipped complete with oil control and fan to supply combustion air, and with a conventional front mounting plate that measures 6 3/4" high by 7 1/2" wide. A special plate also can be provided 8 1/8" wide by 13 3/4" high. Models in stock are available measuring 18" and 26" from back of plate to the rear of burner. Air box inside furnace measures 5 7/8" by 4 1/4" high.



Look at this record...
OVER A QUARTER OF A MILLION
FAMILIES ENJOY MORE COMFORT
AT LESS COST WITH B&W I.F.B.
It can mean "record" sales for you!
B&W I.F.B.

**Progressive, forward-looking dealers have brought increased heating comfort and reduced fuel bills to more than a quarter of a million families by lining their oil burner fireboxes with B&W Insulating Firebrick.**

**That's an impressive figure—and it carries a vital sales message for you.**

**It proves that dealers—and customers alike—recognize the advantages of B&W Insulating Firebrick which eliminate odor, soot, and smoke; which reach high temperatures quickly after a cold start; which minimize burner-tip carbonization and furnace noise. It means that, when you install B&W I.F.B. for the linings of your customers' fireboxes, you are assuring them of the satisfactory, economical heating performance they demand.**

***Have you received your copy of the B&W FIREBOX HANDBOOK? It is an interesting and informative guide to complete customer satisfaction—and more profits for you—through better firebox design. Write for a free copy today.***

R-280

B&W

Water-Tube Boilers, for Stationary Power Plants, for Marine Service . . . Water-Cooled Furnaces . . . Superheaters . . . Economizers . . . Air Heaters . . . Pulverized-Coal Equipment . . . Chain-Grate Stokers . . . Oil, Gas and Multifuel Burners . . . Seamless and Welded Tubes and Pipe . . . Refractories . . . Process Equipment.

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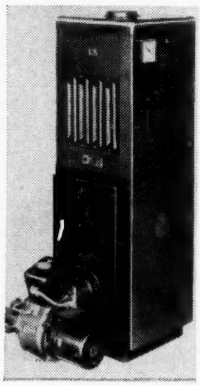
THE BABCOCK & WILCOX CO.
REFRACTORIES DIVISION
GENERAL OFFICES: 85 LIBERTY ST., NEW YORK 6, N.Y.
WORKS: AUGUSTA, GA.


### U. S. Radiator Adds Automatic Water Heaters

ADDITION to its line of two new automatic water heaters has been announced by U. S. Radiator Corp., Detroit, Mich. Both units, one gas and the other oilfired, are available in commercial sizes for supplying hot water requirements of hotels, apartments and similar applications. They can be used alone or connected with hot water storage tanks depending on requirements.



The oilfired model, furnished in one size only, has a heat output of 93,000 Btu/hr and requires no more floor space than a chair. Completely automatic in operation, the unit features an air cooled base, glass wool insulation, all necessary controls and a maroon baked enamel jacket. Gasfired models are offered in six sizes.

### Comfort-aire Furnace Unit Installs In Small Space

COMFORT-AIRE heating unit, being produced by Heat Controller, Inc., Addison, Mich., measures 32" high, 26" wide and 36" long, lending itself to below-the-floor installation in homes without basements. In addition to its ability to be installed between floor joists, the unit can be suspended from ceilings, mounted on wall platforms or placed on the floor.

Available in both horizontal and vertical construction, it can be shipped with gas or oilburner as a complete winter air conditioning unit or a gravity heater

# *signed orders come easier...*

# *when* FAIRBANKS-MORSE
## *is on the nameplate!*

Gadgets and gimmicks may sell heating equipment to *some* people, but the vast majority of families still buy quality, dependability and performance *first!*

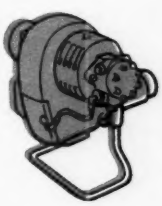
That is why you'll find it easier to sell heating equipment bearing the Fairbanks-Morse name plate. Americans now, as for more than 119 years, know that the name Fairbanks-Morse on a product means they will get their money's worth.

Fairbanks-Morse also means fair dealing with you . . . a complete, competitive line . . . a cooperative advertising plan that really works . . . a parts service that wins friends for you and earns a profit as well . . . a training school for service men, and many other advantages. Get on the Fairbanks-Morse bandwagon *now!*

For full details of our plans for you, write Fairbanks, Morse & Co., Chicago 5, Illinois.

**NEW!** Oil or gas-fired boiler. Comes complete with controls installed. Ready to plug in and use. Compact. Efficient. Only 24"x37"x40" overall.

**NEW!** Packaged unit. Burner and controls assembled. Has high rating at all altitudes. Occupies small floor area. Accessibility to interior delights service men.



**NEW!** Burns catalytic oils, up to 3 gallons per hour. High pressure atomizing type. Its 1/12 hp. motor is specially built to operate with this new high efficiency burner. Easily installed.

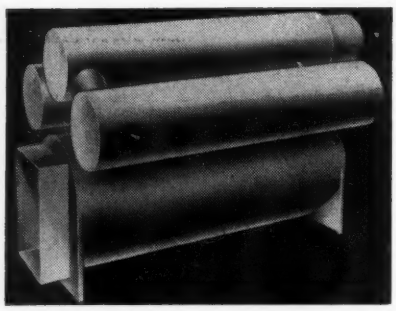
# FAIRBANKS-MORSE
## *A name worth remembering*

DIESEL LOCOMOTIVES • DIESEL ENGINES • STOKERS • SCALES • MOTORS • GENERATORS
PUMPS • RAILROAD MOTOR CARS and STANDPIPES • FARM EQUIPMENT • MAGNETOS

**PROTECTED TERRITORY!** Only you can sell Fairbanks-Morse heating equipment in a territory assigned to you. That means you'll never have to worry about being undersold on Fairbanks-Morse products. You, alone, control sales and profits in your territory!

**New Oil Burner on Display**
**BOSTON EXPOSITION**
**MAY 16 - 20**

fuel oil & oil heat



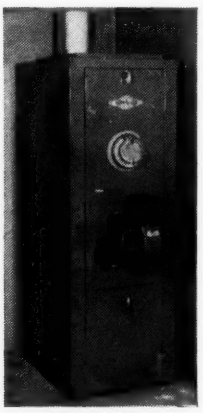
with automatic controls. With a ¼ hp motor the unit delivers 65,000 Btu at the bonnet, 55,000 Btu with a 1/6 hp motor. The air conditioning unit is placed either at the rear or the side of the horizontal model and mounted under the combustion chamber in the vertical type.

## Majestic Incinerator Offered In Improved Model

MODEL NO. 2, fuelless indoor incinerator, announced by Majestic Co., Huntington, Ind., is a double-walled cylindrical metal unit, fitted with a welded steel rod grating and cast-iron swinging top and ash clean-out door. By means of a grate-baffle, draft is induced through the top to dry and burn the contents. Both wet and dry garbage is inserted in this model, an improvement over the original introduced several months ago, and when filled to its 2 bushel capacity a lighted match ignites the accumulation. Successive burnings reduce remaining contents to a fine ash. Unit measures 23″ in diameter, 32″ high.

## Norwalker Furnace Line Includes Ten Models

BEGINNING with a 75,000 Btu register rating, Norwalker winter air conditioning units, a product of The Norwalk Airconditioning Corp., South Norwalk, Conn., are offered in a line of ten units with capacities up to 1,000,000 Btu register output. All heat generators are constructed with steel welded seams. The smaller unit uses 10 gauge steel, with 3/16″ steel used to fabricate the largest size. Measuring 22″ wide, 33″ deep by 62″ high, the unit is shipped completely assembled, normally is furnished with smokepipe on top of the unit, but can be delivered with smoke outlet on either side or the rear of the unit, when so specified.



To facilitate its application, the six piece casing furnished with the unit is of 22 gauge material, slip-joint construction to permit assembly without the use of sheet metal screws or bolts.

## Magic Wheel Circulator Installed In Furnace Bonnet

INSTALLED in the furnace bonnet rather than in the base, Magic Wheel circulators, announced by Bazley & Schumaker Eng. Co., Colorado Springs, Colo., draw incoming furnace air over the hot crown of the firebox before circulating it to the ducts. The circulators move an air volume of 250 cfm at 70°F., are powered with a 1/25 hp motor and can be controlled thermostatically.

When so operated, it is recommended for best performance that the fan switch be set to start at 150°F. and shut off when the bonnet temperature drops 10% below this setting. Utilization of


SWIRLING HEAT

THE BETTER OIL BURNER!

**PRINCIPLE.** Combustion head, with *vertical* nozzle, is located *inside* the firebox. Pressure air, guided by "Swirlator", mixes with oil vapor to produce highly turbulated mixture and a swirling ball of flame.

**CONSTRUCTION.** Conventional motor - fan - pump unit supplies air through square draft tube. Oil line and ignition bus bars run inside draft tube. Combustion head cover is instantly removable for access to nozzle and electrodes.

**ECONOMY.** Laboratory tests and checks on thousands of installations show higher efficiency and substantially lower fuel costs. Performance is achieved through superior combustion and faster, more uniform heat distribution.

**FEATURES.** No refractory combustion chamber is used, heat being radiated directly by ball of fire. With cooled combustion head, and no intense heat throw-back from red-hot chamber at cut-off, *electrode carbonization and nozzle coking are prevented by eliminating the conditions that cause them.*

**MARKET.** Live customers are waiting for the superior performance that Swirling Heat can deliver! *We are looking for live, experienced leaders who will welcome a line of better burners.* Let's get together!

- NO COMBUSTION CHAMBER REQUIRED
- NO CARBONIZING ON NOZZLE OR IGNITION POINTS
- HIGHER $CO_2$ — GREATER EFFICIENCY
- INSTALLATION PROBLEMS GREATLY SIMPLIFIED

*Combustion head, with lift-off cover removed, showing nozzle mounting, ignition contacts and rings, and bottom of Swirlator plate.*

Write for Literature!

Dealers! See us at the Boston Show

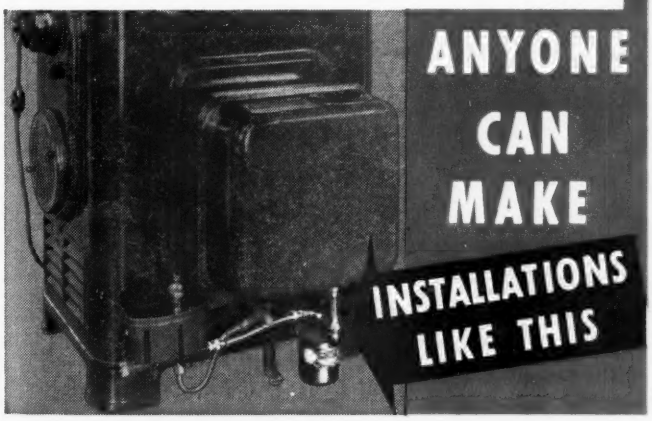
SWIRLING HEAT CORPORATION, 1775 BROADWAY, NEW YORK 19, NEW YORK

RESEARCH LABORATORIES: 2818 N. WASHINGTON BLVD., ARLINGTON, VIRGINIA SINCE 1929

# WALK-IN CUSTOMERS *Go for this*

GET THIS ATTRACTIVE COUNTER DISPLAY *Free*

Shoppers and walk-in customers will go for this General Filters display. Every home owner who uses fuel oil has need for at least one filter. Takes up only 14" x 5¾" space yet it contains all three models. Attractively finished in three colors. Sent you *free* except the three sample filters.



ANYONE CAN MAKE INSTALLATIONS LIKE THIS

**SPACE HEATERS • WATER HEATERS**
**LARGE AND SMALL FURNACES OR BOILERS**

Every fuel oil burner needs a General Filter because the savings in service calls in one season will more than pay for this filter. Installations are so simple that any home owner with one wrench can make the installation. Three sizes to choose from—takes care of every requirement.

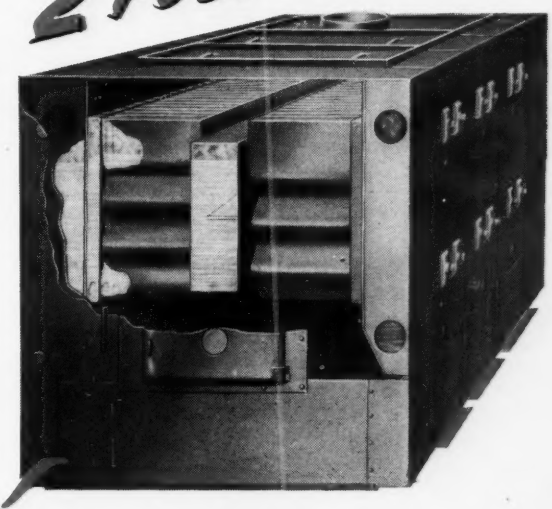
**GET IN THE PROFITABLE REPLACEMENT CARTRIDGE BUSINESS**

New cartridges every season assure you of a repeat profit after the initial sale. Ask your wholesaler about this deal or write direct to the factory for details.

**GENERAL FUEL OIL FILTERS**
12890 WESTWOOD • DETROIT 23, MICH.

FOR THE LARGE INSTALLATION

# THE ONLY SECTIONAL STEEL BOILER THAT CAN BE *taken through a 2 FOOT DOOR!*



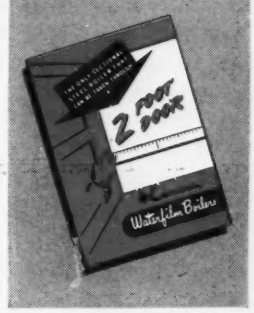
Koven

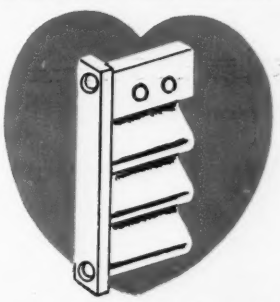
# WATERFILM BOILERS

Throughout the country, many apartment houses, industrial plants and other large buildings have found vast savings were made possible by the Waterfilm Sectional Boiler because it could be installed with a minimum of time and labor. And its patented construction (incorporating the exclusive zig-zag water tube) insures quick heat and economy! Waterfilm, in models and sizes for small homes as well, is recommended by leading architects and builders. Write for free literature and newspaper mats. NATIONALLY ADVERTISED.

**NO EXPENSIVE RIGGING OR ALTERATION COSTS!**

**SEND FOR FREE BOOKLET**



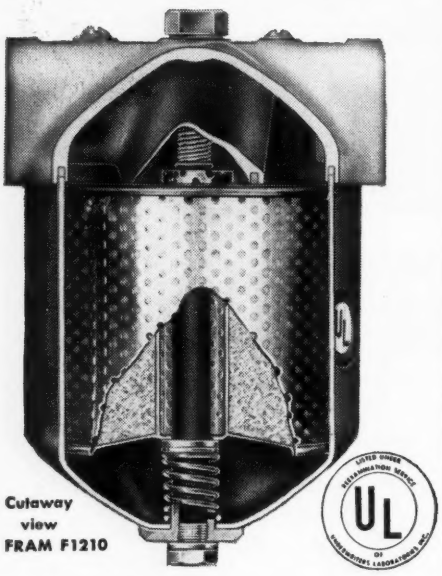
**The heart of the Waterfilm Boiler is the zig-zag shaped water tube.**

**MADE FOR AUTOMATIC FIRING WITH OIL, STOKER OR GAS**

**WATERFILM BOILERS, Inc.**
A Division of L. O. Koven & Bro., Inc.
154 Ogden Ave., Jersey City 7, N. J.

# NEW FRAM FUEL OIL FILTERS

## Cut Service Calls
## Build Satisfaction
## Make Repeat Profits



Cutaway view FRAM F1210

*Filters the oil clean through an entirely new development • Removes dirt, rust, scale, water • Assures steady flow of clean oil to the burner • Protects pump valves and nozzles • Reduces service expense and needless, troublesome calls • Easy to install • Replacement cartridge builds repeat profits • Available in capacities of 2000, 4000, 6000 gallons of oil consumed per year.*

*See the sensational new Fram Filter at booth No. 790 at the*

**NATIONAL OIL HEAT EXPOSITION**

**May 16 thru 20, Mechanic's Hall-Boston**

**FRAM CORPORATION**

**Providence 16, R. I.**

*Headquarters for*

# FRAM

**OIL · AIR · FUEL**

# FILTERS


residual heat in the furnace and collecting furnace air over the hot spots are cited as reasons for economical operation with the circulators.

### Three Sizes Of Pipe Line Strainers By Maid-O'-Mist

A SERIES of small pipe line strainers, announced by Maid-O'-Mist, Inc., Chicago, are made in three sizes, with ⅜" I.P. tap inlet and outlet for use on water, air or gas lines. Large screen areas provide for efficient removal of dirt, rust and scale, without noticeable drop in line pressures. The 80 mesh monel woven wire screen can be removed for cleaning without removing any pipe connections.

Nos. 43 and 44 strainers feature large sludge areas, and No. 47, for air or gas only, is equipped with a screen packed with glass fibre to retain condensation. The condensation is blown off by turning a wheel-handle valve at the bottom of the strainer.

### Hamer-Dril For Use With Portable Electric Drills

HAMER-DRIL, New York 24, N. Y., announces a device for converting the rotary motion of a portable electric drill into hammering action for drilling holes in tile, brick, cement or stone. The unit can be chucked in any ¼" electric drill, any speed. The force with which it strikes is built-in and is the same whatever the speed or power of the drill. Weighing less than 3 lbs., Hamer-Dril measures 6½" x 1⅛", with a 9/16" tool socket hex opening.

### Wheeling Challenger Furnace Adaptable To All Fuels

DEVELOPED by the makers of Tuberator and Champion units, Challenger furnaces have been announced by Wheeling Furnace Co., Martins Ferry, Ohio. Of all steel, arc-welded construction, the unit is designed for the small home requiring a 75,000 Btu output at the bonnet. It consists of a one-piece 20" furnace, with heating surface of 3,647 sq. in.; grate area, 201 sq. in.

Casing size measures 30" x 36" long, overall height, 60". A sloped, flat-topped bonnet, fitted to the top of the casing, is designed to accommodate round collar side take-offs for gravity service, or square duct plenum from the top for forced air systems. Designed basically for firing with coal, the units are offered as adaptable equally well to gas or oil-firing.

### Add Features To New Stow Flexible Shaft Pump Drives

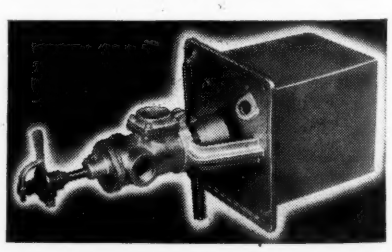
MODELS of flexible shaft truck pump drives, made by Stow Mfg. Co., Binghampton, N. Y., now are offered with overload clutch and quick-disconnect couplings as standard features. The overload clutch protects not only the shaft, but also the pump and power take-off from abnormal operating conditions. For use where the drives are applied to tractor-semi-trailers a quick-disconnect coupling facilitates separation of semi-trailer from tractor. The shafts allow a choice of pump location, at either side or in the rear truck compartment, with the pump placed where it is accessible for servicing.

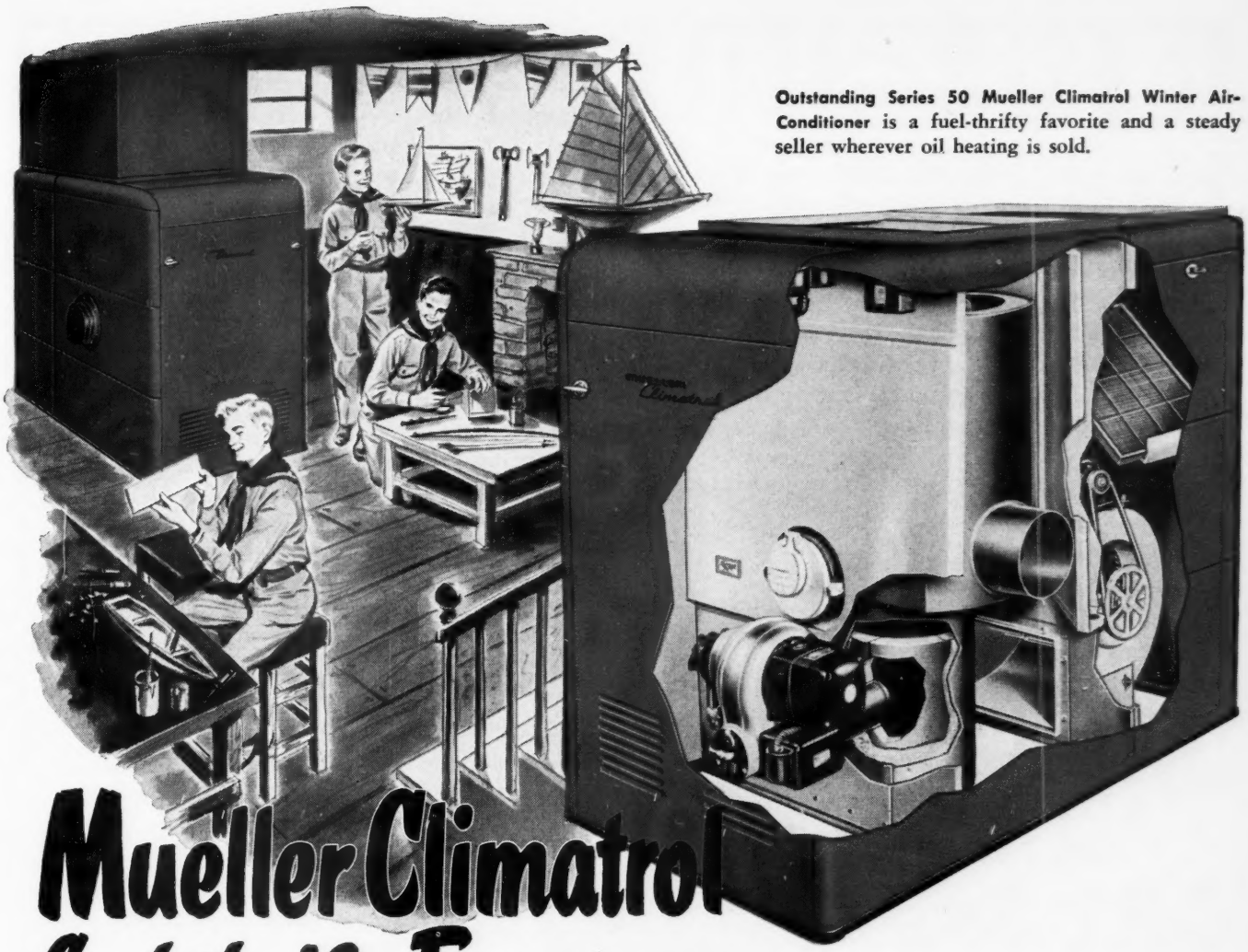
Two types of flexible shafts are offered. A metal covered model is stocked in standard lengths from 5 to 12 ft., in 6" increments and a neoprene covered model—recommended for tractor-semi-trailer operation because of its ability to withstand constant flexing—in standard lengths from 5 to 12 ft., 6" increments and from 12 to 20 ft. in 1 ft. increments.

### North American Gas-Oil Burner for Industrial Uses

DESIGNED for industrial applications, such as heat treating, forging or smelting, North American Mfg. Co., Cleveland 5, Ohio, announces a combination gas-oil series 225 Dual-Fuel burner. The unit will burn natural gas at atmospheric pressure and without changing piping can switch to either light or heavy fuel-oil, or gas of any Btu content.

An adjustable sleeve type shutter al-





**Outstanding Series 50 Mueller Climatrol Winter Air-Conditioner** is a fuel-thrifty favorite and a steady seller wherever oil heating is sold.

# Mueller Climatrol *fuel-thrifty* Furnaces build your sales with their "low-cost comfort" appeal

There are many selling points — points of superiority —in every oil-fired furnace in the Mueller Climatrol line. But when you come right down to it, *fuel economy* is the most important point to most of your prospects. That's the appeal to talk about. It brings you the most sales.

Mueller Climatrol fuel economy is hard to beat. You know that. You don't have to take a back seat with this line. More than 92 years of Mueller experience has given you a line that is engineered to give the *most* comfort for every gallon of fuel burned.

Emphasize fuel economy, no matter what feature of Mueller Climatrol design you're talking about — from the long-life heat-exchangers and efficient burners to quiet blowers and handsomely designed cabinets.

The more you tell about *fuel-thrifty* Mueller Climatrol Furnaces — the more profitable sales you write up. Send for complete information on the Series 50 and other units in the complete Mueller Climatrol line of oil-fired heating equipment . . . *L. J. Mueller Furnace Company, 2009 W. Oklahoma Avenue, Milwaukee 7, Wisconsin.*

MUELLER Climatrol

REG. U.S. PAT. OFF.

**VISIT THE MUELLER CLIMATROL DISPLAY BOOTH 477—NATIONAL OIL HEAT EXPOSITION**

F-44

Fuel oil & oil heat

lows for open or closed firing, as desired, and the entire burner internals can be taken out for cleaning by the removal of two bolts.

### American Latex Adds Two Thermal Barriers

TWO THERMAL BARRIER materials, capable of withstanding temperatures as high as 2800° F. have been added by American Latex Products Corp., Los Angeles 15, Calif., to its line of Stabond cements. FR8 and 10 are obtainable in various consistencies for application by trowel, brush or extrusion gun. Initially of a plastic nature, the FR sealing compounds form a hard but not inflexible covering, which may be given added resistance to air and flame abrasion by incorporating additional support, such as glass cloth or similar material.

### Redmond Company Announces Six Motors, Four Blowers

SIX TYPES of electric motors, recently announced by Redmond Co., Owosso, Mich., are additions to the line which now includes 140 standard models in 23 different types. The new models, sold under the trade name "Micromotors," range in capacity from 1/40 to 1/10 hp.

Also announced are four types of small motor blowers. One double outlet type uses four ¾" blower wheels and delivers 220 cfm. The other three models are single outlet types, two with 3¼" blower wheels delivering 150 and 100 cfm, the third rated at 80 cfm and using a 3⅜" wheel.

### Industrial Smoke Density Control Announced by G.E.

AN INSTRUMENT, announced by General Electric's Control Divisions, is designed to indicate industrial smoke density levels and can be used to control delivery of over-the-fire heated air to the firebox to reduce excessive smoke. It consists of a light source, phototube holder, an enclosure containing the control and an indicator calibrated in Ringelmann units. Continuous strip chart or circular type recording charts can be furnished.

A magnetic relay, set to operate at a pre-determined smoke density level, starts a blower and forces air to the firebox until the smoke density drops to approximately 15%. Each time the relay operates an alarm is sounded.

### Morrison Carry-All Is Universal Service Truck Body

AN ALL-PURPOSE truck body being turned out by Morrison Steel Products, Inc., Buffalo, N. Y., designated the Carry-All, is made in sizes to fit standard ½, ¾ and 1 ton chassis. The entire body is constructed of high-tensile steel and its offset reinforced floor is supported by a bridge-type underbody construction. Increased floor space is gained by placing the weathertight utility compartments out over the wheels so that the floor area is equal to that of conventional pick-up bodies.

Accessories and attachments available include overhead ladder racks, canvas tops, pipe racks, sectional shelves and material trays. Provision also has been made for special equipment such as pipe vises, winches or reels. All utility compartments open to the outside of the body, with compartment doors constructed of inner and outer steel stampings, welded together. Other features

**In the spotlight of critical buyer and user appraisal, SUPER Ignition Transformers stand out as a feature attraction.**

Quality design and construction, field-proven performance and dependability, and top value *plus* lower cost combine to *earn* ever-increasing approval, acceptance, *demand* for SUPER Ignition Transformers.

***As a single source of coordinated supply, SUPER is also at your service with:***

- **Transformers built to custom as well as standard specifications.**
- **An all-inclusive range of mounting bases.**
- **Replacement transformers for every service application.**

*Mf'd In Strict Accordance With UL Requirements Also CSA Approved*

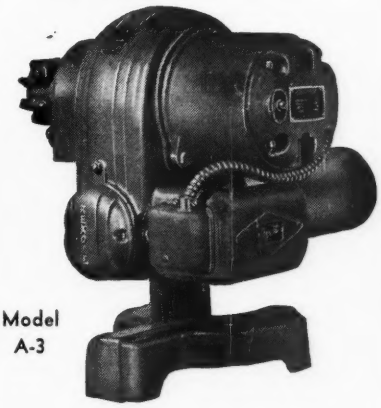
BOOTH 771
AT THE O.H.I. SHOW
(Boston, May 16-20)
cordially invites your visits, your questions, your comments.

Super
ELECTRIC PRODUCTS CORP.
1059 Summit Avenue, Jersey City 7, N. J.

# EVERY REXOIL SOLD -AN EXTRA SALESMAN!

*The Famous Economy Featured*

**REXOIL**



Model A-3

**NOW AT NEW LOWER PRICES!**

## Many Exclusive Features

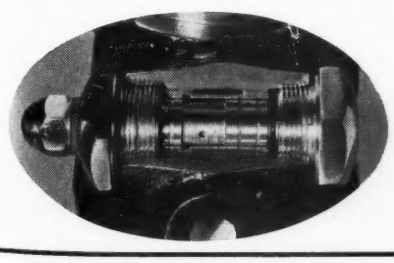
**FIRST** with HIGH-HEAT COMBUSTION HEAD (patented) for best results with all types of fuel oil.

**FIRST** with AIR STREAM TURBULATION (patented) for balanced full-floating flame. No pulsation. No smoke.

**FIRST** with MONOTROL AIR ADJUSTOR (patented) for easy, sure, simple burner adjustment.

**FIRST** with QUICK CUT-OFF FUEL HOARDER (patented) for clean starts and stops. No drip. No puffs. SAVES OIL.

**BEST** with a sound factory policy, a helpful program geared to today's needs and backed by a responsible manufacturer and product reputation unsullied by sharp practices.



## Dealers Attribute Growth of Business to Rexoil Performance,—Enthusiastic Users

SPRINGFIELD, MASS.—Here is a fuel oil distributor and oil burner dealer who, since 1934, has increased his business a hundred times over by the recommendations of customers.

### Credits Growth to Rexoil

Eugene Brodeur, Pres., American Rexoil Heating Fuel Co., Springfield, says, "Since 1934 our Rexoil users have been more than satisfied. They have built our business through their recommendations, and have enjoyed the comforts of well-selected equipment—Rexoil.

"In servicing all makes and types of oil burners I have paid special attention to Rexoil features—long development of an excellent design, precision make of parts, substantial construction. These features have resulted in a burner that is 'nifty' in appearance, simple and quiet in operation, gives trouble-free performance, and is the last word in efficiency."

MANCHESTER, N. H.—In this New England city of 78,000 where winters are notoriously long and cold, this Rexoil dealer has had unqualified success in promoting the "honest value" of the Rexoil Burner.

"Our present customers who own Rexoil Burners are our best selling point," states M. S. Desmond, Pres., People's Gas & Oil Co.

"It's because," continues Mr. Desmond, "a Rexoil Burner never wears out. And as service calls are few, the small additional cost is soon dissipated.

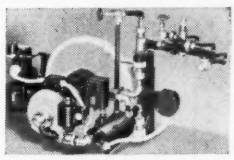
### Rexoil Outsells Competitors

"We have sold Rexoil Burners during the past twelve years. Many times we have had to bid against competitive installations. But because our experience has taught us that a Rexoil Burner has appealing style, careful assembly, best of materials in construction and is practically service free—we have been able to outsell our competitors at a higher asking price.

"We give 24 hour burner service to our fuel oil accounts, but our records will show the Rexoil failures are very small compared to other makes of burners."

**We welcome inquiries from established dealers who do not want to be pushed around.**

**Rexoil HORIZONTAL ROTARY BURNER** *for* **Economical INDUSTRIAL USE**



**Especially designed and constructed for maximum efficiency with *heavy* oil. Precision made in every respect for years of trouble-free operation. 9 sizes; 25 to 500 h.p.**

**REXOIL**

### REXOIL Quick Cut-Off FUEL HOARDER

Unlike conventional pressure regulating and cut-off valves which do not coordinate oil supply to nozzle and subsequent cut-off with air velocity, the Rexoil Fuel Hoarder allows oil to bypass nozzle until fan has reached speed necessary to provide proper amount of air for combustion. Results in smooth, easy start and clean, hot flame with no wasted fuel, no chugging stop.

*Better Your Business* WITH *Automatic*

**REXOIL**

OIL BURNER

REIF-REXOIL, INC.

37 Carroll St. Buffalo 3, N. Y.

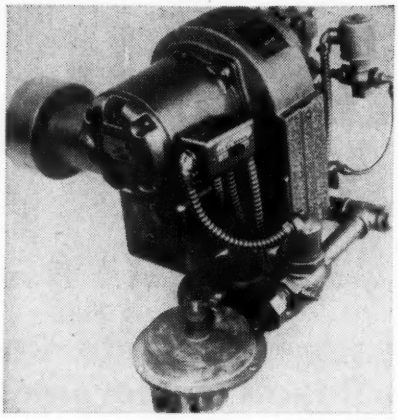
include interchangeability of parts, advertising space and safety tread floors.

### Photoswitch Type A20C-1 Photoelectric Smoke Indicator

TYPE A20C-1 smoke indicator, developed by Photoswitch Inc., Cambridge 42, Mass., consists of a photoelectric control and light source. Mounted on opposite sides of the flue, the light source beam is projected onto the control. A sensitivity adjustment permits settings to signal when smoke density approaches a predetermined value, with supplementary equipment available, such as bell alarms, densimeters for continuous indication of smoke density and recorders. Type A20C-1 has been designed for installation in the average power plant.

### Gas-Oil-Tronic Is Dual Fuel Burner

GAS-OIL-TRONIC burner, announced by Quiet Automatic Burner Corp., Newark 4, N. J., is a combination gas and oilburner, wherein change from one fuel to the other is made by a flick of the thermostat switch. First model marketed



is rated at 2½ gph for oil and 175,000 Btu for gas. Other sizes range up to 1,000,000 Btu capacity.

A single thermostat controls either system and the same combustion chamber is used for each. When the gas unit operates, the air tube of the oilburner supplies secondary combustion air. The burner can be used with No. 2 fueloil, bottled, natural or manufactured gas.

### Preferred Steam Generators Offer Quick Fuel Change-Over

CHANGING from gas to oil, or vice-versa, now can be accomplished with fully automatic combination unit steam generators, Preferred Utilities Mfg. Corp., New York 26, N. Y., has announced. Units employing horizontal rotary burners make the change-over by swinging open the burner and inserting the primary gas burner in the oilburner firing port. The primary burner handles about a quarter of the total maximum heat input, supplemented by a main gas burner which is in place inside the furnace extension.

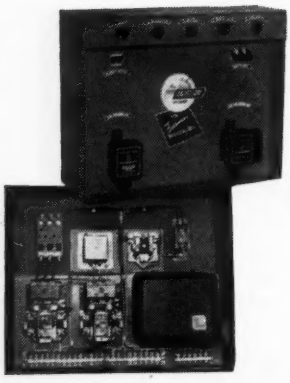
Preferred also has developed a combination gas-oil unit for sizes from 20 to 70 hp for units normally using pressure atomizing burners. Sizes for the complete line of Preferred steam generators, which can be fired with all grades of commercial gas or oil, range from 20 to 500 hp, pressures from 15 to 200 lbs.

### Muessco Self-Contained Pressure Reducing Valve

TYPE 31 Muessco pressure reducing valve, developed by Mueller Steam Specialty Co., Long Island City, 1, N. Y., is a self-contained regulator, designed to receive varying or high pressure and


# The Perfect Oil-Burning Equipment Combination

**ACE PANEL BOARD**

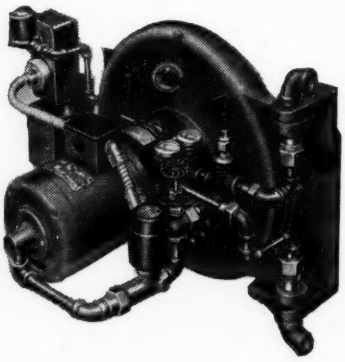


The new all-steel Ace control panel permits rapid and efficient installation of oil burners.

It is pre-wired at the factory so that it is only necessary to supply the power and make connections on location. Wires are color-coded for ease in circuit tracing. Pilot lights indicate if burner is operating as desired.

The prefabricated panel has a number of other features that make it outstanding.

**ACE Uniflow OIL BURNER**



Ace burners are custom made for particular heating requirements, assuring dependable, economical, efficient applications in the commercial and industrial field.

The patented Ace Uniflow Valve permits a constant, uniform flow and flame regardless of changes in oil temperature or viscosity. The correct proportioning never varies.

*Capacity Ranges*

| | Gallons Per Hour | Boiler H.P. | Square Feet Steam Rad. | Square Feet Water Rad. |
|---|---|---|---|---|
| Minimum | 4 | 12 | 1,600 | 2,600 |
| Maximum | 165 | 500 | 64,000 | 104,000 |

**SEND FOR ACE MANUAL**

A special manual for architects and engineers is now available. Send for your copy today.

Ace UNIFLOW OIL BURNERS

**ACE ENGINEERING CO.**

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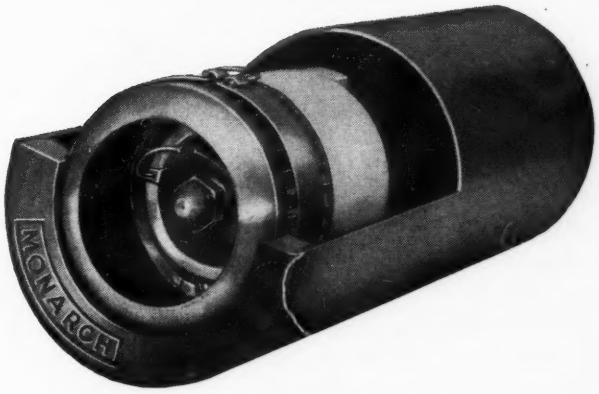
*Custom Engineered Oil Burning Systems Since 1931*

# AT THE SHOW -- SEE MONARCH!

## THE NEW COMBUSTION HEAD




The Monarch G-74 Head embodies an entirely new approach to efficient means for intimately mixing air with atomized oil to provide a highly efficient controlled flame.

***Note these features:***

1. Suitable for capacity sizes from .75 GPH to 2.50 GPH.
2. Simple to install and has no external "adjustment" to juggle and there is no "guess work" about the settings.
3. Price—Less than the cost of a good fuel unit.

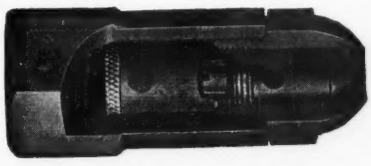
**Send for Circular #1749**

### Atomizing Nozzles

Preferred Because:

1. Each nozzle is individually tested and checked for capacity against the flow of a calibrated master sample. Capacity tolerances are as low as plus or minus 2½%.

2. Standard nozzles will fire most gun type high pressure burners satisfactorily, but special series are also available for burners requiring specified spray characteristics.



### Replacement Valves

Monarch piston type pressure regulating and cut-off valves are available in several models to suit most replacement needs. G-49 valves can be mounted in any position and piston will not jam from dirt. Contain no bellows or diaphragm to break or corrode.

Booth No. 355

## MONARCH MFG. WORKS, INC.

**2503 E. Ontario St.** **PHILADELPHIA 34, PA.**

European Distributor: A. Coutau, Rue de la Scie No. 16, Geneva, Switzerland

deliver a constant reduced pressure. It is expressly designed for unit heaters and similar applications.

Valves are constructed in sizes ⅜" to 1" of extra-heavy semi steel or bronze body, renewable inner valve unit of naval bronze or stainless steel with a woven monel wire strainer screen. Phosphor bronze or stainless steel diaphragms are laminated according to pressure and service. Uses include service with steam, air, non-corrosive gas and liquids, initial pressure up to 250 psi, reduced pressures from 5 to 150 psi.

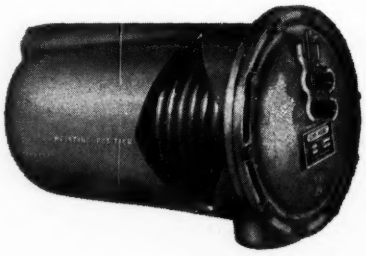
### York-Shipley Introduces Gasfired Heating Units

A LINE of gasfired boiler and furnace units has been announced by York-Shipley, Inc., York, Pa. In the boiler line, five models are offered, with capacities from 350 sq. ft. AGA rating of standing steam radiation to 970 sq. ft. Available for steam, hot water or vapor heating applications, the models feature cast-iron boiler sections, built under the ASME Code.

A Lo-Boy line of winter air conditioners consists of four models, ranging from 56,000 to 168,000 Btu/hr bonnet capacities, while two models of Hi-Boy units are rated at 56,000 and 84,000 Btu/hr. Three models of gravity furnaces round out the line, with capacities from 52,500 to 105,000 Btu/hr at the bonnet.

### Tankless Water Heaters Added To Uni-Heat Line

TWO SIZES of tankless water heaters have been added to the Uni-Heat line of oil-heating equipment by Ret-Rac Corp., Flushing, N. Y. Model T-3 has a capacity of 3 gpm, heating water through a 100° F. temperature rise with boiler water at 180° F., and has a heating surface 12 sq. ft. Model T-4, with a heating surface of 15 sq. ft., supplies 4 gpm under the same conditions.



The heater's cast bronze convex head has a helically wound coil attached to it, and the entire assembly is removable. A built-in manual tempering valve is standard equipment and the coils of both models are interchangeable. A cast-iron shell, which encases the coils, is provided with an aquastat opening and a self-cleaning sludge chamber. A copper longitudinal baffle has been added to the heater to prevent stacking and increase efficiency.

### New Pentwater Folder

PENTWATER MACHINERY CORP., Pentwater, Mich., has made the Whirl-A-Jet wall pump the subject of a specifications sheet and a small folder. The specification sheet contains details of two models, with a parts list and prices. Features are explained and shown with photographs. The folder also uses photographs to highlight construction and operating features, and discusses pump capacities, how it was designed and what it does.


688 . . . . our Booth at the

NATIONAL OIL HEAT EXPOSITION

See

The Bethlehem DYNATHERM

the world's most modern "package" unit!

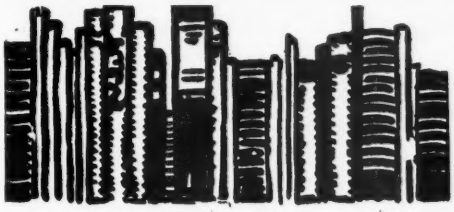
. . . and the famous

BETHLEHEM CONVERSION OIL BURNERS

BETHLEHEM FOUNDRY & MACHINE COMPANY

BETHLEHEM, PENNSYLVANIA

# THE BOOK SHELF



## Four Oilheating Books Are Practical Guides

BOOKS, recently announced by Heating Publishers, Inc., have been compiled from material that has appeared in FUELOIL & OIL HEAT over the past few years, classified as to subject and collected for ready reference in four books. Contents of each book are technical in character, but completely practical, and the books are guides rather than manuals or treatises. Slanted at the domestic oilheating installer and service man, the books cover burner installation, low pressure burners, Everyday Snags and oilheating problems, and a collection of articles on preventive maintenance practices.

*Installing the Domestic Oilburner* is the first book of its kind, presenting a series of discussions on all phases of the subject. Brought together in the 64-page, 8½"x 11", book are the most helpful and practical of the stories that have appeared regularly in FUELOIL & OIL HEAT, written by men who are best qualified by technical background and field experience to know how to install oilburners for homes. Price, $1.00.

Another first of its kind, *Low Pressure Burners,* is a 20-page, 8½"x 11" book, which explains simply but fully the principles of operation of various low pressure burners. A series of articles discusses each of these burners: G. E. Hart, Hev-E-Oil, Oil-O-Matic and Winkler, accompanied by schematic drawings of each make to give a fully understandable picture of their construction and operating principles. The product of two practical oilheating men, well equipped to prepare these articles, the book amounts to an ABC course in low pressure burners. Price, $1.00.

The third book is a collection of what is considered to be the most helpful and informative items selected from the Everyday Snags and Readers' Problems that have been accumulated over a period of years. Gathered together under the title *Oilheating Snags,* practical and logical solutions are offered to regularly encountered problems in domestic oilheating installation and service work. Numbers of diagrams and layouts are included in the 64-page, 8½"x 11" book, to afford visual solutions to the troubles being discussed. Price, $1.00.

*Heading Off Trouble,* another 64-page, 8½"x 11" book, is dedicated to the principle that none of us always can avoid trouble, but, particularly in domestic oilheating, there are numerous precautionary and preventive steps that can be taken to reduce the number of service calls. Many articles have been appearing in the magazine emphasizing such procedures and there now have been collected to present in a single book the better and more useful ways to improve operating efficiency and cut down call-backs. The articles selected are accompanied by diagrams, charts and photographs. Price, $1.00.

All of the above books can be obtained from the Book Department, Heating Publishers, Inc., 232 Madison Ave., New York 16.

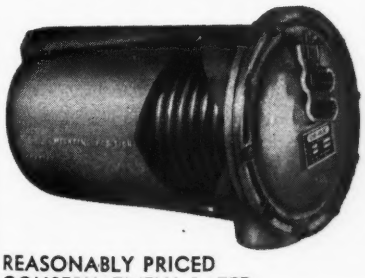

Visit us in Booth No. 101, at the NATIONAL OIL HEAT EXPOSITION Boston, Mass. May 16-20

DON'T FAIL TO SEE

— THE SENSATIONAL —

NEW Multi-Featured TANKLESS BY "UNI-HEAT"

WITH THE EXCLUSIVE "UNI-HEAT" BUILT-IN TEMPERING VALVE



• NOTE THESE FEATURES

- Built-in tempering valve
- All helical wound coil
- Cast bronze convex head
- Readily removable coil
- Lifetime cast-iron shell
- Self cleaning sludge chamber
- Longitudinal baffle
- Balanced flow design
- No chafing—No rattles
- Fully guaranteed

REASONABLY PRICED CONSERVATIVELY RATED

SPECIFICATIONS:

| MODEL NUMBER | G.P.M. | TEMP. RISE | BOILER WATER | SQ. FT. HTG. SUR. |
|---|---|---|---|---|
| T-3 | 3 | 100°F | 180°F | 12 |
| T-4 | 4 | 100°F | 180°F | 15 |

Compare the many features of the new "Uni-Heat" Tankless and we believe you will agree it is one of the world's finest heaters.

and

— THE HIGHLY EFFICIENT —

Precision Engineered "UNI-HEAT"

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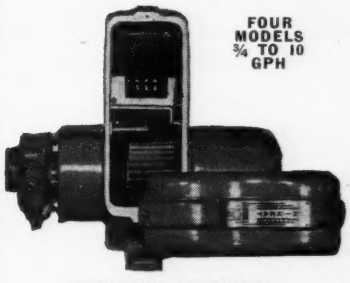

FOUR MODELS ¾ TO 10 GPH

EXCLUSIVE TERRITORY TO RELIABLE DEALERS.

CONVERSION OIL BURNERS

• • • •

A PRACTICAL OIL BURNER

IT'S ACCESSIBLE— REMOVE ONE SCREW AND EXPOSE ALL WORKING PARTS.

IT'S SERVICEABLE— ALL ADJUSTMENTS EXTERNAL. BUILT-IN TERMINAL BLOCK.

IT'S EFFICIENT— EXCLUSIVE HEAD DESIGN BURNS "CAT" OILS CLEANLY.

LITERATURE ON REQUEST

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RET-RAC CORPORATION, 36-01 Lawrence St., Flushing, N. Y.

Please send literature and prices including quantity discounts on

☐ UNI-HEAT Burners
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STREET .....

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RET-RAC CORPORATION • 36-01 LAWRENCE ST., FLUSHING, N. Y.

## Reader's Problems

*Q. We would appreciate any information you can give us to help us estimate the oil consumption of a building when the size of the boiler, gallons of oil fired per hour, and total heating and hot water loads are known.*

*F.A.C., Bronx, N. Y.*

A. The following principles apply and can be used, but give answers far from dependable. The reason for this is that a number of important factors which affect the oil consumption of a building cannot be evaluated or even roughly estimated.

To use theory in trying to figure how much oil should be used per year for heating a New York building, you can first consider the heating season as the equivalent of 80 days, each zero outside temperature, and 65 degree-day load. Eighty times 65 equals 5200, roughly the degree-days you can expect in New York for the heating season. Make the 80 lower or higher to compensate for a milder or more severe heating season, if you expect such a season.

With a good oilheating system, you can expect about 70% overall efficiency for the entire system, depending on some of the heat given off by the furnace or boiler, distribution system, and smokepipe and chimney ultimately reaching the rooms and serving to heat them. On that basis, each gallon of oil burned for heating will provide 100,000 Btu's, roughly, to heat the rooms. The 100,000 comes from multiplying 70% efficiency times 140,000 Btu, roughly the heat content of one gallon of oil; figure this more accurately if you desire.

One gallon of oil will be used per hour for each hour of a zero day, then, to heat a building having a net heat loss (total heat losses of the rooms but with no allowance for pick-up or heat losses of heat distribution system) of 100,000 Btu per hour. In 24 hours of zero weather, 24 gallons of oil would be used. During the heating season, 80 times that much oil, or 1920 gallons, would be used for heating. This is on the basis that to heat a building having an hourly heat loss of 100,000 Btu's on a zero day calls for firing 1.0 gph at 70% efficiency and requires keeping the burner running 100% of the time on a zero day.

According to this basis, you divide the net heat loss of the building by 100,000 to determine the suitable gph rate for continuous burner operation on a zero day. You multiply the result by 24 to find out how many gallons of oil are needed during 24 hours of a zero day. Then multiply by 80 because you figure the entire heating season is the equivalent of 80 zero days.

Actually, of course, after we figure the heat losses of a small home as equal to 100,000 Btu per hour and fire 1.0 gph to heat the home, the burner does not run 24 hours a day on a zero day. The reasons for this are also the reasons why theory cannot be used to obtain 100% dependable estimates of the oil consumption of different buildings.

In figuring the heat losses of rooms, we cannot take into accurate, numerical consideration the important factors of quality of workmanship and quality of material used in putting up the building. We cannot account accurately for the weather factors including humidity, sunshine, rain, snow, and wind. We cannot account numerically for the important factor of condition of a building in use for some time. For these reasons, at best our heat loss figures, though good enough for sizing heating equipment and for making certain oversize, economical equipment will be installed, fall short of being accurate foundations for figuring oil consumption.

You can, of course, inject experience factors after making check-ups on dozens of homes typical for your city, and figure that for example for each 100,000 Btu's net heat loss the daily oil consumption on a zero day will be 16 gallons, not 24 gallons, because a burner firing 1.0 gph to heat a home with a net heat loss of 100,000 Btu's will run a total of 16, not 24, hours a day on a zero day. In

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Manufacturers of Quality Heating Equipment Since 1928

WEATHERALL OIL BURNERS

CONVERSION OIL BURNERS

WARM AIR UNITS

HOT WATER UNITS

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Open Territory for Aggressive Distributors Available

Weatherall Engineers, INC.

387 CHARLES STREET, PROVIDENCE, R. I. TELEPHONE DEXTER 2883

effect, after making certain the heat losses of the homes are figured on the same painstaking basis, you deduct the same percentage from the zero-day theoretical oil consumption of each.

Bear in mind several additional factors. In the same house, one family might use 1,500 gallons of oil for heating while the next family to occupy the house might use 1,300 or 1,800 gallons. Actually, equipment efficiencies must be estimated over a wide range as indicated by some new oilburners' using 15% to 25% less oil than the older burners they have replaced, and by from 20% to 50% of the oil being saved by replacing an old furnace or boiler by a new unit of exceedingly high efficiency.

Taking into account all these factors, experts can figure oil consumption within an accuracy range of plus or minus 15%. To figure oil used in summer for water heating, use these thumb rules. On an ordinary summer-winter installation, a burner runs a total of two hours a day in summer to heat water; multiply the gph rate by two to arrive at the daily oil consumption in gallons. On an exceedingly efficient installation, a burner might run a total of one hour per day in summer to heat water.

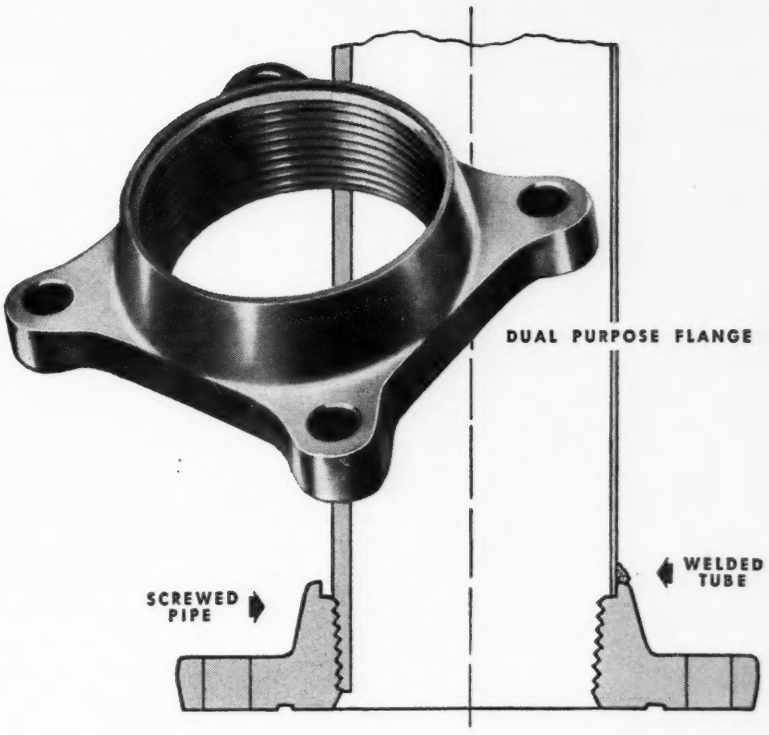
* * *

Q. *Setting a gun burner for a flame too close to the smoke point leads to a drop in efficiency because the flues become soot-coated and the stack temperature goes up gradually. Setting for lower $CO_2$ avoids this but gives a higher stack loss to begin with. Where's the happy medium for a service man who does not use instruments every time he tunes up a burner?*

*H.H.L., Chicago.*

A. To be modern and thorough, you must use combustion testing instruments often enough for the readings to improve your judgment and give you confidence. Even if you will not use them every time you adjust a burner, become experienced at using a draft gauge, a $CO_2$ indicator, a stack thermometer, and a smoke instrument. Because you wonder if fires are too rich or too lean for lasting high efficiencies, the smoke indicator is particularly important to you.

To solve your problem, take smoke, $CO_2$, and stack temperature readings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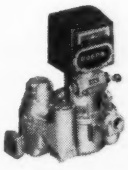
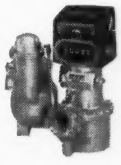
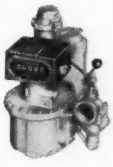
***Smith Truck Meters are now furnished with forged steel flanges***

**In step with the growing trend toward welded tubing for tank truck piping, Smith Meters are now furnished with forged steel flanges instead of cast iron. Installations may now be made with tubing welded directly to flanges or with screwed pipe connections at users' option. Forged steel flanges are but one of many advantages of Smith Meters — famous for fast, accurate service and for "Unitized Design" which permits tailor-made installations.**


T-6


T-10


T-15

*Illustrated Left Above: One and one half inch T-6, 60 GPM, inlet 1½" pipe or 2" OD tubing. Center: Two inch T-10, 100 GPM, inlet 2½" pipe or 3" OD tubing. Below: Three inch T-15, 150 GPM, inlet 3" pipe or 3½" OD tubing.*

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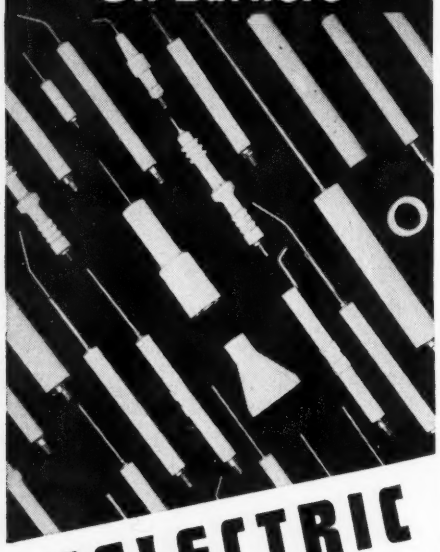
The Most Widely Used Ignition Assemblies for Oil Burners



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The majority of oil burners being installed or serviced today are equipped with Dielectric electrode assemblies . . . and for good reason—

1—They are made with the finest steatite insulators and electrode tips . . . in any designs to meet specific burner requirements.

2—They have all Underwriters Laboratories, Inc., approvals.

3—Standard assemblies are available for quick delivery.

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In addition, Dielectric high tension cable assemblies and Dielectric bus bars for transformer and electrode layouts are available for any practical burner hook-up.

Let Dielectric's complete, prompt engineering cooperation help improve your burner and expedite production. Write for bulletin.

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on a dozen different installations. Lean towards flames slightly smoky on some installations, and brighter than usual on others. Make detailed notes and keep them. Return to these installations in three or four months and make the same tests, then compare the readings with those you obtained earlier. You will learn quickly the proper $CO_2$ and smoke readings for the particular type of oil-heating equipment you are servicing.

For years, we have published these instructions on setting the air dampers of pressure burners: Close the damper so far that closing it farther will lead to trouble with chimney smoke or with depositing of excessive soot in the flues of the boiler or furnace. We have indicated also that installations which have low firebox temperatures or unusually low stack temperatures have greater tendencies to soot the flues, therefore are in all common sense adjusted for lower $CO_2$ (than typical installations) by experienced service men. These instructions are as good now as they were years ago. You will find it much easier to follow them, however, if you will obtain a modern smoke testing instrument and become 100% experienced at smoke testing. * * *

## Problems

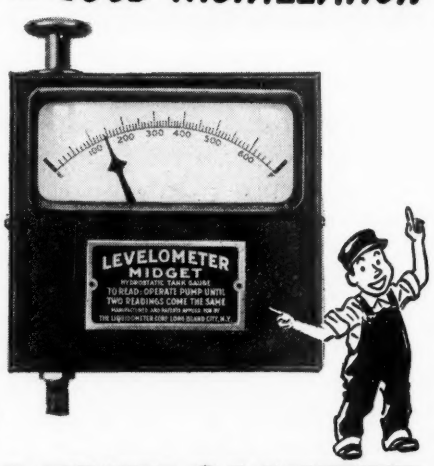
*Q. This is about a forced-circulation hot water heating plant equipped with a hot water storage tank. We can't understand why during the past few months the owner has been complaining that the hot water tank gives scalding hot water. Earlier, the tank gave moderately warm hot water. Can you figure out what has changed, and tell us how to run the tank cooler? We supply the oil and service the job only occasionally. Service men from other companies also adjust the burner. We think they altered something and made the tank hotter, but we can't reason out just what they might have done.* R.E.S., Montclair, N. J.

A. There's the possibility that the other service men flushed out the coil of the tank-type indirect water heater, so increased its output.

Check to find out if the installation has a valve which can be used to reduce the output of the indirect water heater for the coldest months of the heating season. If it has instruct the owner in using the valve.

Probably the setting of a boiler temperature control has been changed with the result that the heating boiler now stays hotter than it did earlier, when the tank was not overheated. Read the boiler thermometer and find out if the boiler is kept at 180° to 200°. Boiler temperatures that high often overheat tanks. Try lowering the setting of the boiler temperature control that regularly starts and stops the burner. A setting of about 155° may permit the radiators to give enough heat, since actually many forced-circulation hot water heating plants have radiators considerably larger than steam-

A GOOD GAUGE COMPLETES A GOOD INSTALLATION

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size. Such a setting leads to a reasonable temperature for the hot water storage tank. Probably at one time the boiler temperature was lower than it is now, and at that time the house was heated properly on coldest days, and the hot water tank was not overheated. Simply try keeping the boiler cooler.

* * *

*Q. We would appreciate your comments on which method is the most economical for controlling a forced-circulation, oil-fired hot water heating system with convector radiators, no summer-winter hot water.*

*To eliminate the cold floors when the burner is off, we did not use the flow control valve. We figured the gravity circulation we would get after the pump stopped would eliminate air stratification by keeping up circulation through the convectors while the burner is off.*

*Any suggestions you may give us will be more than appreciated.*

*W.W.E., Hillsboro, Wis.*

A. With the circulator idle, probably heat left in the boiler after the burner stops will go only to the radiators closest to the boiler, since after all the distribution system is laid out for forced-circulation and therefore cannot be expected to distribute heat well to the radiators with the circulator idle.

If you are lucky, some heat will go to important radiators after the burner and circulator (which are wired in parallel, we gather) stop together, and this heat will keep warm some important radiators in the house with the result that the owner is pleased.

If you are unlucky, the heat distribution in the house will be poor because the radiators near the boiler will give out more than their proper share of heat. This may cause complaints that the radiators far from the boiler give insufficient heat, and that the rooms far from the boiler are chilly.

Our favorite control method, for the type system you describe, is to control the oilburner and the circulator independently. Use a room thermostat to start and stop the burner. Use a stack temperature control and a reverse-acting boiler temperature control, wired in parallel with each other and connected to the live wire feeding the circulator, to start and stop the circulator. When


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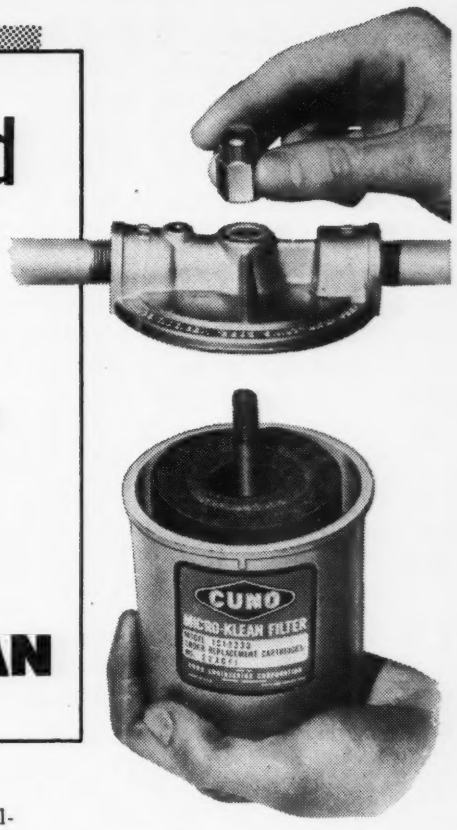


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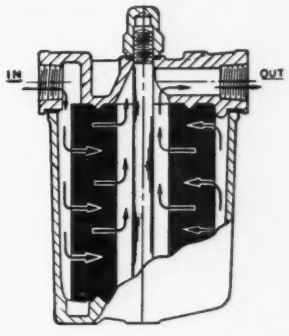


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the switch in either of these controls closes, the circulator will run. First, the circulator will start soon after the burner starts because the stack temperature control starts the circulator. A special stack temperature control must be used to start the circulator when the stack temperature increases perhaps 50° or 100°. Second, because of the action of the reverse-acting boiler temperature control, the circulator will operate whenever the boiler temperature is higher than, say, 110° or 120°.

* * *

*Q. What causes the wall in back of and above a steam radiator to become black?*

*D.D., New York.*

A. Dirt in the air, which might be excessive to start out, is swept along in a hot stream of air and in effect tends to deposit on the cool surface of the wall. Small, low radiators naturally give less trouble of this kind than larger radiators. Installing effective insulation in the outside wall behind the radiators reduces the trouble, though it may not be feasible; this works by increasing the temperature of the wall surface on which the dirt has been deposited. Your best solution may lie in radiator cabinets of good design which prevent hot air from sweeping against the outside walls.

* * *

*Q. With experience behind us related to slightly sluggish circulation in a radiant heat system, we want to make certain there is swift water flow through each of the long coils of a system being planned.*

*Distance A-B in the accompanying sketch actually is more than 80 ft. Coils C, D, E, and F each include 170 ft. of ½" nominal size copper tubing. Lively heat must come from every square inch of tube area.*

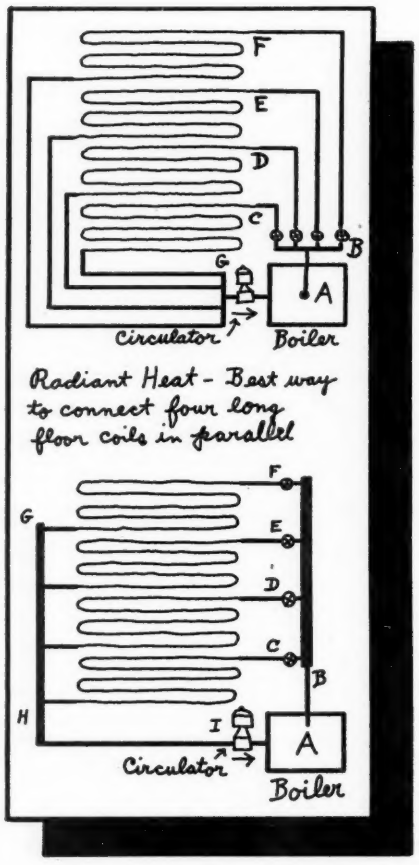
*Please comment on placing header B in the upper drawing in the boiler room, as compared to the plan my partner prefers, in the lower sketch, which has big headers G-H and C-F at the output and input ends of the coils.*

*H.L., Peoria, Ill.*

A. A careful study of both sketches indicates that both you and your partner are worried that the circulation rate through the different coils will be different with the result that coil F and perhaps E will have slower circulation and be cooler than the coils closer to the boiler.

You will avoid trouble if you plan to have the pressure-drop of the system come mainly across the banks of coils, and if you make certain the circulator you select has an adequate flow-rate, at the design pressure-drop, for the heating load.

With proper piping sizes, either of the methods you describe for piping to




the coils will be entirely satisfactory. For check-up after you use your own methods for figuring the pipe sizes, make certain that the sum-total internal areas of coils C, D, E, and F is exceeded by the area of the supply (and the return) main which runs from the boiler room to the coils. In the upper sketch, the area of line A-B (and G-A) should exceed the sum-total area of the four coils. If you use the ideas of the lower sketch, the internal areas of line H-I-A (and A-B) should exceed the sum-total internal area of the four coils. In practice it has worked out well, with lines of lengths you will use for this installation, to have the internal main area exceed the sum-total internal coil areas by 35% to 60%.

The valves you show should be used to tune the system finally so that each coil gives the desired amount of heat.

If you are worried greatly about working each square inch of tubing area at no lower than the design output you have in mind, you may be figuring too closely. We suggest that you ease your mind by using five coils, instead of four, to heat this area.

* * *

*Q. What is the catch to using vacuum-type radiator vent-valves on one-pipe heating plants equipped with tankless water heaters that barely make the grade?*

*M.W.E., Ontario, Canada.*

A. There is a catch. If the boiler must be kept at about 200° to provide sufficient hot water, developing a high vacuum after the burner stops with the radiators full of steam may keep the radiators hot while the burner starts and stops because of the action of the boiler temperature control. Keeping the radiators hot after the room thermostat circuit opens overheats the house. Only low vacuums are suitable for steam heating boilers which must be kept at high temperatures to obtain sufficient hot water from tankless coils. Don't plan, for example, to develop a vacuum as high as 15" or 20" in such a boiler by tightening the system and installing vacuum-type venting devices.

* * *

*Q. On page 104 of your December issue, in the Everyday Snags department, I would like to know the exact reason for using 140 lbs. nozzle pressure instead of 100 lbs. pressure on a higher-output tip.*

*I think this item on a practical way to cut oil consumption is very good. If more of the so-called service men would use their heads, the oilheating industry would not have so many headaches.*

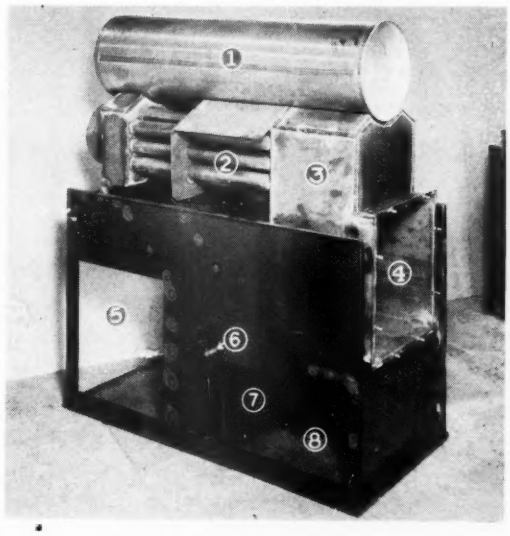
*S.W.I., Lancaster, Pa.*

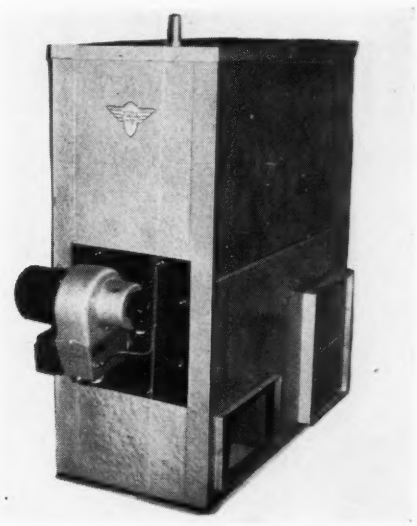
A. The unusually high nozzle pressure was used because with the help of combustion testing instruments the service man learned that on this job the higher pressure gave better combustion than could be obtained at 100 lbs. pressure. Of course, his conclusion applies only to the nozzles he tried in the burner. If he had gone on and on trying addi-

# Forced Warm Air Invades Hot Water Market

## Metropac Completes Winter Air Requirements

**When a customer asks, "Why can't I have my forced air furnace supply my hot water?" the winter air conditioner dealer now has a logical answer—"You can have it with METROPAC, and real hot water storage right inside your furnace, too!"**



**Right photo shows conditioner with cabinet enclosure; manual handle for by-pass damper operation is on opposite side. Parts numbered in left photo: (1) water storage tank, (2) fire-tube heat exchanger, (3) combustion chamber, (4) burner mounting, (5) opening for return air, (6) by-pass damper axis and control mount, (7) by-pass damper, (8) opening for discharge of warm air.**

SPOTLIGHTED AT THE recent Ninth International Heating & Ventilating Exposition, a new type of warm air conditioning furnace (METROPAC) featured a built-in provision for year-round domestic hot water firing. It is also designed for future installation of refrigeration coils for cooling.

HOT WATER HEATING in the METROPAC is accomplished through the use of a storage tank resting just above the fire-tube heat exchanger. Blower is at rear base of the Unit and draws air through filters, forcing it upward over heat exchanger and water storage tank thence downward to supply duct connections at front base. Both return and supply connections may be made on either side. A manually operated by-pass damper provides for direct blowing of air into supply ducts, bypassing the heat exchanger and allowing continual hot water heating during summer while blower furnishes the circulation of room air.

THE NEW CONDITIONER is available with a gun-type METROMATIC Oil Burner which features a removable head for easier servicing and to decrease the cost of replacement. The burner is suitable for installation with any type of automatic firing desired. Three sizes of furnaces are being made: 70,000, 120,000 and 180,000 Btu/hr output capacities at the registers. Automatic air humidification is furnished through the use of glass fibre wicks. Water heating is faster than that obtainable from the usual high-recovery type of standard gas or oil-fired heaters.

THE PRESENCE OF water stored within the furnace brings an external agent to absorb excess heat and maintain a counter-balance on the heating of air. The net effect is an amazing efficiency of operation. The constant temperature around the storage tank provides a source of immediate heat at the registers at any time, and taking the warm air from the bottom insures immediate cessation of heat when the thermostat is satisfied.

THE UNIT IS fully insulated with one inch of glass wool which is covered with asbestos sheeting and faced with aluminum foil. This insulation eliminates any heat radiation from the METROPAC, winter or summer.

THE SLIDE-CHANNEL design of the Unit permits complete assembly in less than twenty minutes by one man. The plenum chamber is built-in.

THE METROPAC IS directly in the price class of any air conditioner when hot water is added.

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tional nozzles, including some of different designs and makes, he may have wound up with a nozzle which gave best possible combustion for the particular installation with the atomizing pressure at 100 lbs.

Different authorities have different opinions regarding proper atomizing pressure for domestic burners. Some declare that in general service men should standardize on 100 lbs. pressure, asserting that usually no good comes of spending time on trying atomizing pressures considerably lower or higher. Other authorities declare that according to their experiences much is gained by trying pressures as low as about 75 lbs. and as high as about 150 lbs. on problem installations. In trying to make up your mind on the subject, don't fail to take into consideration the opinions of the manufacturers of the burners, fuel units, and nozzles which you use. One nozzle manufacturer, for example, recommends that 100 lbs. pressure be used, pointing out that the nozzles of this make are engineered entirely for precisely this pressure. On the other hand, another nozzle manufacturer declares that especially with nozzles rated for 1.0 gph and lower rates, the best results usually come of using pressures considerably higher than 100 lbs.

To cure flame pulsation on a furnace installation, a dealer recently reported, he switched to a higher-output nozzle and dropped the nozzle pressure to 70 lbs. He declares this gave silent, smooth combustion on this installation after hours of work had proved it impossible to end the flame pulsation trouble using any other method.

* * *

*Q. We had a round tile combustion chamber in a steam boiler about 14" operating with a 1.65 x 80° nozzle without any difficulty. It was a little slow in picking up the load. We thought we would change to a light weight insulating firebrick type chamber. This we did and came up with the following: Combustion chamber is 12" wide x 17½" long x 16" high. We operated this with a two gallon nozzle 80° and it formed a round piece of carbon on the end of the air tube. We changed to a two gallon 60° nozzle and it did the same thing. The coke got heavier this time and blocked off the air tube all but a small center hole. We put more asbestos around the end of the air tube but it did not stop the coke forming.*

*Could this be caused by the radiant heat being so strong that back in the air tube the air brought in at 70° turns to carbon immediately? We never had such an experience before. It seems so far-fetched. This is the first time we have tried such a combustion chamber. If the wall across the air tube and the corners were plain firebrick would that change the condition?*

*R.T.W., Detroit.*

A. The formation of the carbon doughnut at the end of the gun tube probably is caused by one or more of these factors which hinder the combustion in mid-air of atomized oil in the vicinity of the end of the gun tube:

1. Unusually high temperatures of the combustion chamber, which are related to the narrowness of the firebox and the use of the insulating firebrick, are causing the atomized oil to vaporize too rapidly as it sprays from the nozzle. The result is that the gun tube end of the

FYRITE
Combustion-Testing
MASTER KIT

**Boosts Sales and Profits**

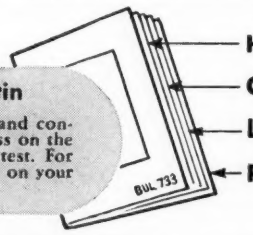
Now, while your customers are totaling last season's heating costs, is the time to show them the inefficiencies of existing equipment by a dramatic "fuel-saving" test with the combustion-testing kit shown above. It's a cinch for closing new burner sales and getting profitable repair business.

Combustion-testing helps you make money in two ways. First, it boosts service profits because with instruments any service job can be done in less time and by less experienced men. Secondly, combustion testing is the only means to make sure that the burner is adjusted accurately when you leave the job, and this accurate adjustment means the end of needless call-backs which eats up the profits you made on the original installation.

The Master Kit shown above is by far the most popular combustion-testing kit in the heating trade. It appeals particularly to those who want professional implements of highest quality and reliability, as well as of impressive display.

Dealer's price, $48.00. Other FYRITE Combustion-Testing Kits are priced from $36.50 up.

***See the FYRITE Kits and our many other Service Instruments at your Jobber.***

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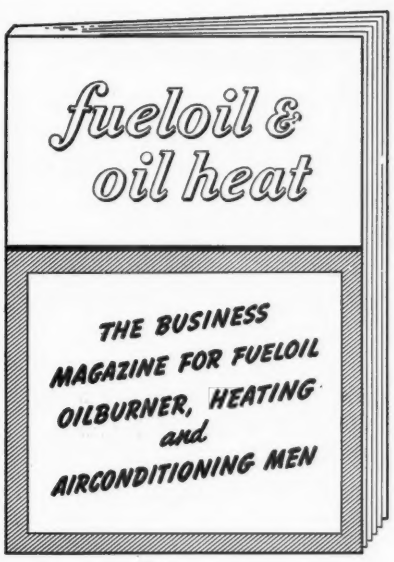
Bulletin 733 describes the Master Kit and contains information of every day usefulness on the four important steps of a combustion test. For your free copy, tear this clipping, paste on your letterhead and mail *today*.

**BACHARACH INDUSTRIAL INSTRUMENT CO., 7000 Bennett St., Pittsburgh 8, Pa.**

# The June Issue
## *Will Be The*
# "SHOW REPORTING ISSUE"




- **It will give a comprehensive, item-by-item, person-by-person, event-by-event, report on the National Oil Heat Exposition, Boston, May 16-20. We will have 8 staff members there to assure our usual competent coverage.**

**For years this has been one of the most sought-after issues of the year, useful to readers and advertisers. It has the regular high quality editorial material plus reports on things new and interesting at the Show.**

**It has superior advertising values for all Exhibitors as well as Non-Exhibitors for it takes your messages to all parts of the industry—effectively and at low cost.**

## ADVERTISING FORMS CLOSE MAY 25

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**232 Madison Ave., (LExington 2-4566) New York 16, N. Y.**

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firebox contains an excessive amount of oil which is completely vaporized and ready for combustion. In effect, too much of the oil is trying to burn close to the nozzle.

2. The air stream from the end of the gun tube, flowing into the firebox, does not match the exceptionally narrow firebox, for it permits oil vapor or particles of atomized oil to sweep across the metal air-handling parts of the gun tube, on which the carbon is being deposited. Much of the oil is burning too close to these metal parts on which the carbon forms, or liquid oil actually is striking these parts and keeping them wet with oil which vaporizes and burns off them.

3. Oil particles or oil gases are being caught by eddy currents of air at or just inside the end of the gun tube, and swept backwards in a way that causes them to come in contact with the metal parts on which the carbon forms. This may occur, to begin with, at only one point. Carbon may form first at that point, then gradually form at additional points until the carbon doughnut is formed.

Your trouble is not unusual. It is similar to the formation of carbon on electrodes set far from the oil spray, which is related to poor design of the air-handling parts in a burner and to resulting whip-back of oil spray or vapor into the gun tube of a burner.

First, use a flame mirror to find out if with the burner operating you can see signs of a whip-back of flame which brings the flame, occasionally at least, too close to the metal parts of the end of the gun tube. If you see such a whip-back, you'll have to take the corrective measures which will end it. These may include shifting the position of the nozzle in the gun tube and adjusting the gun tube air-handling parts if these are adjustable.

Second, since on this job coarser atomization may end the trouble by causing more of the oil particles to travel farther back into the firebox before burning, you should try using the next size larger nozzle together with considerably lower atomizing pressure. Consider trying 60 or 70 lbs. pressure.

Third, using any method to reduce the firebox temperature will help. Do away with front-wall or rear-wall corbels if the firebox has these, or use lower side walls if this is feasible.

Fourth, try to reduce the load on the boiler, since overloading may be the root of the trouble. If the burner can be adjusted for a lower gph rate or can be made to operate for fewer hours a day, the trouble probably will end.

Fifth, make certain that the end of the gun tube of the burner is at least half an inch away from the fire side of the firebrick so as to avoid overheating of the air-handling parts, nozzle, and end of the gun tube. Don't have the end of the gun tube flush with the fire side of the bricks around it. Don't have it sticking into the firebox.

* * *

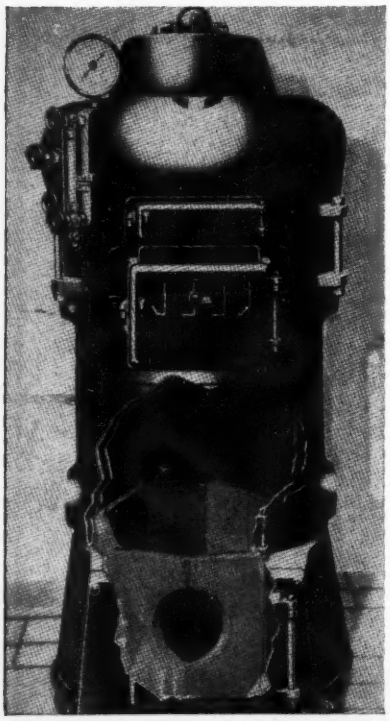
*Q. How can we tell if an oilburner really can burn cat-cracked oil efficiently?*

*I.D., Oakland, Calif.*

A. If possible, visit laboratories and actual installations where the burner is being fired, and make combustion tests. Take with you samples of fueloils known to be 100% cat-cracked, and try these in the burners. Or instead, compare the burner you are wondering about with a


**New R & I Combustion Chamber Defies the Highest Temperatures**

**The improved R & I Combustion Chamber, made of a super-duty, medium-weight refractory, will positively withstand much higher temperatures than those created in the new oil burners. And it will resist severe abrasion and thermal shock.**



**It heats up quickly, yet retains enough heat in its walls to produce longer burner "off-periods"—resulting in lower fuel consumption.**

**Is packed in a sturdy carton complete with floor and everything to do a complete job.**

**Better than ever, the improved R & I Chamber insures long, efficient, trouble-free firebox life.**

**You can get them from your supply house. Write us for Bulletin OB-99.**

**REFRACTORY & INSULATION CORP.**
**116 WALL ST. NEW YORK 5, N. Y.**

**Chicago 4, Ill. Newark 2, N. J.**
**Philadelphia 2, Pa.**

**R&I COMBUSTION CHAMBER**

Revolutionary *New*

# RADIANT HEATING SYSTEM

**Lower in First Cost — Lower in Operating Cost Than ANY OTHER Form of Automatic Heat**

## The MOST SIMPLE AND EFFECTIVE System Ever Devised

Automatically balances itself and heats ALL rooms evenly. No cold floors — no cold spots. If a cold wind is blowing on one side of the house, those rooms heat up quickly, while rooms on the sunny side do not over-heat. *Automatically* puts the heat where it is needed.

Can be installed in EXISTING buildings *without alterations,* as well as in *any* type of new construction.

Here is today's greatest opportunity to satisfy the demand for the modern comfort of radiant heating — at low cost.

Why put up with cold floors, air stratification, drafty, dust moving, inadequate, out-of-date systems, when you can get *Perfect Radiant Heating* in ceilings, walls and hardwood floors, at *Lower Cost?*

IT'S SENSATIONAL. Thoroughly tested through 8 years of research and proven by 300 installations. Built by Scott-Newcomb (established 1917), pioneers of automatic heat.

*Write for booklet — come and see display houses in Saint Louis area.*

SCOTT NEWCOMB

**SCOTT-NEWCOMB, Inc.**
1450 South Boyle Avenue
Saint Louis, Missouri

Some Scott-Newcomb territories are now open and are being assigned. You may be eligible. Phone, wire or write today.

# Follow up this

## BIG LINE

## to greater heating profits

STOKOL

- A Heating Line you will be proud to sell.
- A complete Heating Line of types and sizes.
- A Line of Commercial and Domestic Stokers.
- A moderately-priced Heating Line.
- A fine quality Heating Line.
- A big name Heating Line made famous by years of national advertising.
- A Heating Line that will enable you to successfully compete on price, quality, reputation and provide a wide variety of home and commercial installations.

***CLIP AND MAIL THIS COUPON***
***WHILE GOOD TERRITORY IS STILL AVAILABLE***

STOKOL-STOKER CO., INC.
DAYTON 1, OHIO

Please send me complete information on the BIG STOKOL LINE.

Name_____

Address_____

City_____ Zone____ State_____

burner you are already familiar with. This can be done easily using combustion testing instruments and different types of fueloils on an actual installation or an easily set-up laboratory layout. The same methods are used now to find out if new burners can use cat-cracked oils efficiently as were used in the past to find out if burners could use the then-popular types of oils at high efficiencies.

* * *

*Q. We are wondering how much heat, in terms of square feet of steam radiation, can be taken from a steam boiler by an indirect water heater that gives out 120 gallons of hot water, 100° rise, in three hours. To us, it figures that the boiler needs 1/3 gph more firing rate because of the water heater load. We can't understand why some say you should disregard the additional boiler load of a tank heater.*

*C.P., Watertown, Mass.*

A. Raising the temperature of 40 gallons of water by 100° in one hour requires about 33,300 Btu. Dividing 33,300 Btu by 240, the Btu equivalent of one square foot of steam radiation, gives 139 as the steam radiation load at the boiler of the water heater. Probably your figures agree roughly with these, causing you to conclude this load is not negligible.

Heating one gallon of water by 100° F. rise in one hour can be taken as 3½ sq. ft. steam radiation load at the boiler. On the basis of this thumb rule, heating 40 gallons of water an hour (using a heater rated at 120 gallons, three-hour basis) amounts to a load at the steam boiler of 140 sq. ft.

However the problem can be regarded differently. With six occupants in the house served by this water heater, and each accounting for 15 gallons of hot water per day, 90 gallons of water would be heated daily. Half the time, or for 12 hours of the day, the hot water tank may be fully heated, so may place no load on the boiler. During the remaining 12 hours, the heater provides 7½ gallons of hot water each hour; heating 7½ gallons each hour for 12 hours makes up the 90 gallons of water used daily, since 7½ times 12 equals 90.

On that basis, the typical output of the water heater is 7½ gallons per hour. Multiply by the 3½ factor explained above, and you obtain 7½ x 3½, or 26 sq. ft. of steam radiation as the load put on the boiler by the water heater.

With the hot water tank entirely cold, the water heater would put on the boiler a load equal to 140 sq. ft. of steam radiation. Actually, about 50% of the time this water heater amounts to a load of about 25 sq. ft. of radiation. The water heating peak load and the house heating peak load probably never will occur simultaneously. If you regard the problem reasonably therefore, in this case the water heating load can be assumed to be negligibly low.

◈

CORBMAN BROS., Philadelphia 6, Pa., presents the JusRite Catalog 10 GAC on furnace pipe and fittings, prefabricated ducts, fittings and accessories, as both a merchandising tool and a sizing manual. A forced air section features standard stock fittings for an Easy-Flo system and a Simplified Extended Plenum system. Each system specifies the fitting number at the point of application. Data are included for both gravity and forced air fittings.

"NEWTYPE"
FUEL OIL HOSE

**The hose with the *tough brown* cover . . . preferred by drivers for its easy handling, and by management for its unequalled efficiency and economy.**

Every feature of "Newtype Cord" contributes to quicker deliveries and lower costs—light weight and extreme flexibility; non-flattening, kink-proof construction; full-capacity flow through entire length of hose; longer hose life, despite severest wear and abuse. It's a profit maker for every truck you put it on!

***Contact Our Nearest Branch for Complete Details and Prices***

GOODALL RUBBER COMPANY

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.

Branches: Philadelphia • New York • Boston • Pittsburgh • Chicago • St. Paul • Los Angeles
San Francisco • Seattle • Salt Lake City • Denver • Houston • Distributors in Other Principal Cities

Est. 1870

# Industry Groups

*Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Group's activities to reach the editor by the 20th.*

## Philadelphia Dealers Conduct Spring Campaign

A PROMOTIONAL CAMPAIGN, instituted by the Oil Heat Division of the Electrical Association of Philadelphia, is running from May 9 to June 4, featuring newspaper and radio advertising and an Oil Heat Exhibit, beginning May 16 and running for a week.

Throughout the period there will be a strong schedule of newspaper advertising to emphasize oilheating features and advantages and stressing the adequate oil supply available. The campaign is to include a series of four large display advertisements in all three of Philadelphia's metropolitan daily papers. The program also will make use of radio advertising to keep oil heat in the public's mind constantly through the period.

The Oil Heat Exhibit is to be held in the showroom of the Edison Building, presenting the equipment of participating oilburner distributors, with the products of accessory equipment companies. Coincident with the show, and during the week preceding it, a heavy concentration of special show advertising copy will list the trade names of the participating companies. Dashboard cards will be displayed on 800 street cars of the Philadelphia Transportation System and oilheating dealers will aid the publicity by displaying similar cards featuring the show. Another special card to enumerate selling points for oilheating is to be developed for similar display.

To stimulate attendance at the show a limerick contest is planned, with the entrant being required to deliver his entry in person at the contest desk on the show floor.

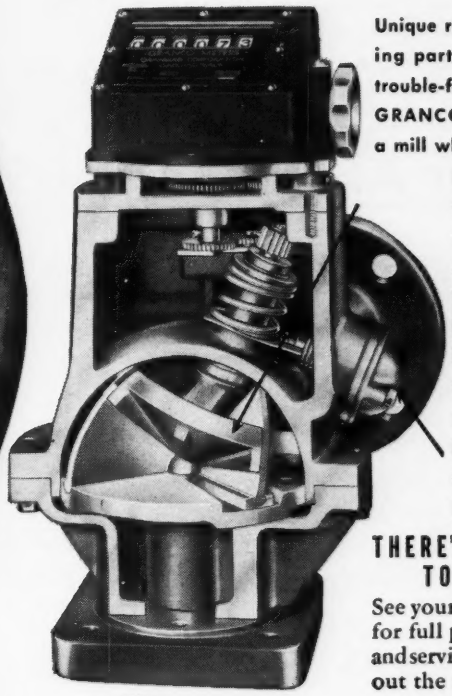
On March 31, W. A. P. Henninger, chairman, Oil Heat Division, outlined details of the campaign in a letter to all members and enclosed participation blanks. A gratifying response gave indications that this year's campaign will be the most comprehensive of its kind. A breakfast meeting on May 10 at the Warwick Hotel inaugurated the cam-


HOW TO MAKE UP YOUR MIND ABOUT METERS

Naturally, you want a meter so nearly perfect you can put it on the job and forget it. Here are the features an outstanding meter should give you:

TROUBLE-FREE OPERATION . . . . . ☑ Granco
FAST DELIVERY . . . . . ☑ Granco
GUARANTEED ACCURACY . . . . . ☑ Granco
LONG SERVICE . . . . . ☑ Granco
LOW INITIAL and MAINTENANCE COST . . ☑ Granco
ACCURATE PERFORMANCE at all VISCOSITIES ☑ Granco
QUICK, EASY CALIBRATION . . . . . ☑ Granco

ONLY GRANCO HAS THEM ALL!



Unique rotary action and fewer working parts give precise measurement, trouble-free operation and longer life. GRANCO Meter action is as simple as a mill wheel turning in a brook. Rotor turns directly in line of flow with friction-free "feather weight" action. No eccentric or reciprocating movements to interrupt the smooth flow of liquid, cause slippage or turbulence in the metering chamber. GRANCO Meters have an extremely low pressure drop. Easy, accurate calibration. Dial on outside of meter tells you how at first glance.

THERE'S A GRANCO METER TO FIT YOUR NEED

See your distributor, or write today for full particulars. GRANCO sales and service "at your service" throughout the nation.

Granco

GRANBERG CORPORATION
Oakland 8, California

Also makers of Granco Rotary Positive Displacement Pumps

paign. George E. Whitewell, vice president in charge of sales of the Philadelphia Electric Co., spoke at the meeting, discussing the local market, with emphasis on the selling job ahead.

## Independent Oil Men's Group Meets In Silver Anniversary

THE SILVER ANNIVERSARY convention of the Independent Oil Men's Association, Boston, Mass., was held May 3 and 4 at the Copley Plaza Hotel, Boston. The sessions started with a noon luncheon on May 3 for the officers and directors of the group, followed by an afternoon meeting, featuring two sound films. The first, "The Undersea Search for Oil," recounted the story of drilling and exploring operations in the Gulf of Mexico. A film, "Desert Venture," detailing the story of Arabian oil operations, also was shown. Donald Waugh, Oil Industry Information Committee, was chairman of this session.

Two forums on May 4, one in the morning, the other in the afternoon, were presided over by John W. Scott, Buckley & Scott Utilities, Watertown, Mass. The morning gathering featured a talk by D. Stephen Thrall, National Cash Register Co., who discussed "The Selection and Training of Men to Sell." John C. Dowd, John C. Dowd Advertising, Inc., was the forum leader in the afternoon, explaining how to put "New Punch in Your Promotional Plan."

The theme of the meeting was "What Lies Ahead of Us?" and in developing it, J. Howard Marshall, Ashland Oil and Refining Co., the speaker at the anniversary luncheon on May 4, spoke on "Where do we go from here?", and Henry J. Taylor, noted journalist, author and commentator, discussed the future in "Looking ahead, not only at home, but abroad," in the featured address at the banquet that same evening.

## Jersey Oil Dealers Hold Annual Meeting

THE ELEVENTH annual meeting of the Fuel Oil Distributors' Association, Newark, N. J., was held at the Hotel Berkeley-Carteret, Asbury Park, N. J., April 28 and 29. L. E. Ulrope, vice president, Esso Standard Oil Co., and W. Chalmers Burns, president, Hartol Petroleum Corp., were featured speakers. Mr. Ulrope's address dealt with "Changing Markets—Its Effect on Your Gallonage" and Mr. Burns discussed "Supplier Relationship — One Man's Appraisal." Robert Gray, business manager, FUELOIL & OIL HEAT, also was on the program, with a talk on "Selling More Fueloil."

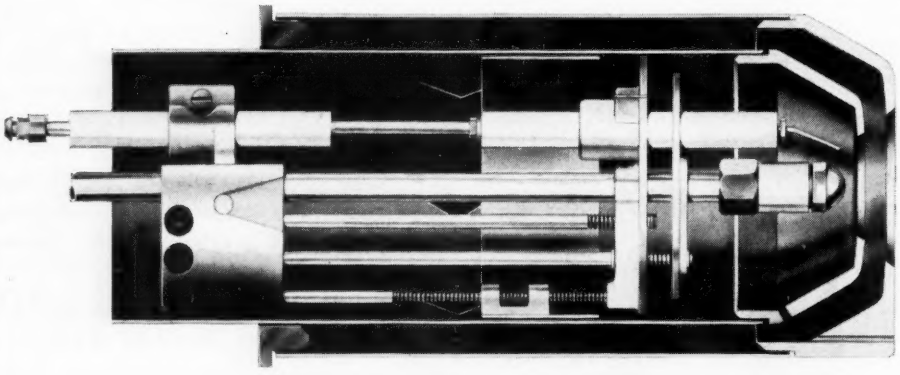
Other speakers at the sessions and banquet were Alfred E. Driscoll, Governor of New Jersey; Arnold Michelson, vice president, Minneapolis-Honeywell Regulator Co.; R. M. Sherman, president, Silent Glow Oil Burner Corp. and John F. Hoff, Jr., Princeton Fuel Oil Co.

## Directors Named By New England O.H.I.

IN ADDITION to the election of officers at the annual meeting of the Oil Heat Institute of New England, Boston 15, Mass., held at the Hotel Statler, March 25, seven directors were elected for three-year terms. They were: William F. Briggs, Valley Oil Co., Middletown, Conn.; C. Everett Elliott, Charles L. Elliott Co., Danvers, Mass.; Louis E.


# SENSATIONAL NEW FIRING HEAD

## See It At The Boston Show - Booth 127



Uses hot distillate or catalytic fuels.

Highest efficiency at all times.

Fuel Savings up to 30 per cent.

Installed in about an hour and a half.

**DEALERS WILL DO WELL TO INVESTIGATE**

***CONSTANT PRESSURE***
***NO PULSATING***

New patented combustion principle. This SYNCHRONIZER firing head will amaze you. Investigate. Write us for full information. Contact our representatives at the show.

**H & K APPLIANCE CO., INC., LIMA, OHIO**
**DUALFLAME DIVISION**

# BOTTOM PRICE *for* LUXURY HEAT...

## *Sells This* NEW UNIT

*to America's Biggest Market*

## *Delivered* COMPLETELY PACKAGED

**Sell *luxury* heat at a price within reach of America's biggest market . . . families building and renovating homes priced under $10,000 . . . but *don't* cut *your* fair profit. *Penn* has done the profit cutting at the factory . . . paring its own margin because it anticipates big volume on its new *Packaged* Air Conditioner Furnace.**

**However . . . timely though it is . . . price is far from the whole story on this new unit. Here are just 3 of the other big features:**

**1. Delivered *completely assembled in the jacket*—with all wiring done at factory.**

**2. Stainless steel construction gives smart, modern appearance . . . extra long life.**

**3. Compact size—length 49" x height 50" x width 21½" — permits two men to carry it through an ordinary doorway.**

**RIGHT NOW is the time to offer a price conscious market this "little giant" among heating units. Production is limited—so don't delay writing for franchise and engineering information.**

**PENN BOILER AND BURNER**
**MANUFACTURING CORP.**
**LANCASTER, PA.**

---

# *SID HARVEY* HAS IT!

**NOW**

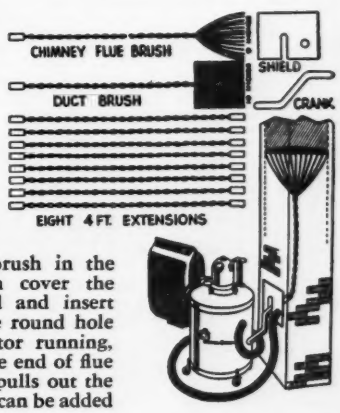
Model 175
Furnace Cleaner

## General Electric applies its skill to improving Furnace- and Chimney-Cleaning Equipment

HERE'S the unit that's designed by General Electric engineers to make furnace cleaning a better business for you!

The G-E Model 175 Heavy-Duty Furnace Cleaner is simple in construction, powerful (1-hp), yet light in weight (51 lbs.). It's designed to clean all types of heating equipment.

The power unit has maximum vacuum of 43 inches water lift. It can be removed from the tank easily. Converts to a powerful blower by removing bag and substituting a blower coupling and a guard.




**Also available is complete chimney cleaning equipment as shown here**

To use the G-E Chimney Cleaning Tools, simply insert the flue brush in the chimney opening. Then cover the opening with the shield and insert the cleaner hose into the round hole of the shield. With motor running, the crank is used to rotate end of flue brush. Powerful suction pulls out the loosened soot. Extensions can be added to flue brush as needed.

## Furnace Cleaners

## GENERAL ELECTRIC

**SID HARVEY INC.**
**VALLEY STREAM, NEW YORK**

**11 BRANCHES**

JAMAICA, N. Y., NEW ROCHELLE, N. Y., BRIDGEPORT, CONN., BOSTON, MASS., PHILADELPHIA, PA., WASHINGTON, D. C., NEWARK, N. J., NEW BRUNSWICK, N. J., UNION CITY, N. J. and at leading jobbers everywhere.

---

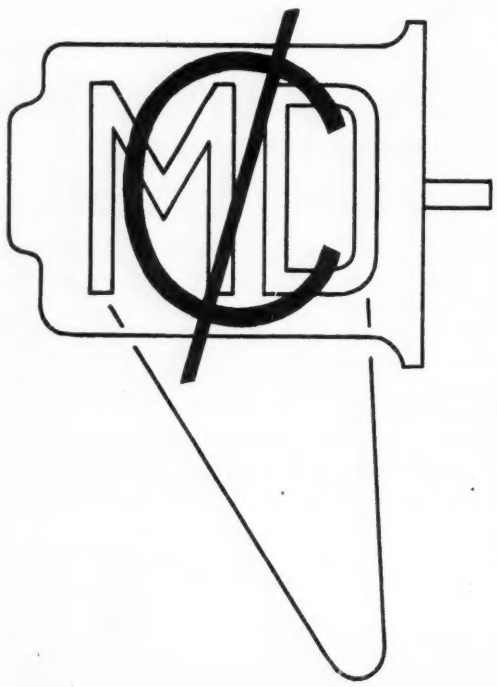
Gardner, General Heat & Appliance Co., Boston; Richard B. MacFarland, George S. Briggs Coal Co., Swampscott, Mass.; Allen E. Morrell, Brunswick Coal & Lumber Co., Brunswick, Me.; Joseph Olney, Jr., Olney & Payne Bros., Inc., Pawtucket, R. I., and Everett L. Wolfe, Wolverine Oil Co., Brockton, Mass.

At the annual meeting of the directors, which followed, Mr. Briggs was named president, Joseph F. Walsh and William H. Flood were elected vice presidents. Associate membership representatives selected were: Thomas G. Colter and Ross M. Sherman and an executive committee was appointed, consisting of Chairman Don P. Hobbs, Augustus L. Dwelley and Fred W. Heaney.

## Solar Heating Explained To Massachusetts Group

THE 162D meeting of the Massachusetts Oil Heating Association, Inc., Watertown 72, Mass., featured a talk on "Solar Heating and What We Should Know About It." Dr. Maria Telkes, originally scheduled to deliver the talk, was unable to attend, and the meeting heard her associate, Dr. Anthony Nemethy. He discussed the new solar-heated home in Dover, Mass., erected as a result of research work done at the Massachusetts Institute of Technology.

Activities at the meeting included a report from honorary secretary-treasurer, Fred W. Beckwith, covering current industry problems and the appointment by President Al Coop of a committee to submit nominations at the May 10 annual meeting.


COMMON SENSE

THE PENNIES ARE WHAT COUNT

*When buying oil burner motors, save*

*dollars and cents with MD motors.*

*MD motors cost no more than others.*

*MD motors save money in weight.*

*MD motors economize on service.*

*Spend less for the best*

ELECTRIC MOTOR DEVELOPMENT COMPANY

WICKLIFFE, OHIO


## Selling To Be Theme Of Warm Air Meeting

THE PROGRAM for the mid-year convention, National Warm Air Heating and Air Conditioning Association, Cleveland 14, Ohio, is being planned around the theme, "'49 Is Selling Time." To be held at the Edgewater Beach Hotel, Chicago, June 21 and 22, the business sessions will feature selling today and sales problems to be faced in the future.

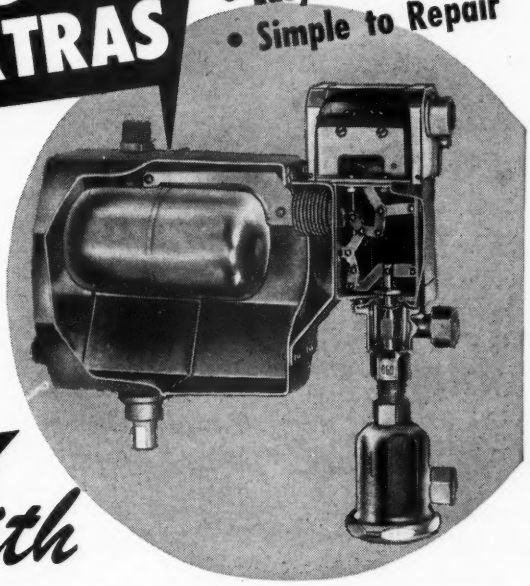
Joe Meek, executive secretary, Illinois Association of Retail Grocers, has been engaged to speak at the noon luncheon, June 21, on the subject, "The Chips Are Down in '49." Sales promotion programs and benefits will be covered by Ralph Town, Rheem Mfg. Co., with L. S. Redford, Jackson and Church Co., Saginaw, Mich., scheduled to point out marketing opportunities for warm air heating in commercial and industrial applications. A discussion by Carl Lans, National Association of Home Builders, explaining the builders' problems in relation to low cost housing, also will emphasize the sales possibilities to the warm air heating industry in the Government's drive for low cost housing.

Rounding out the sales topics will be R. W. Roose, special research associate in Mechanical Engineering, University of Illinois, who will tell of plans for the new Research Residence #3, now being built for testing warm air heating equipment in low cost homes with concrete slab floors. And, speaking on recent developments in the Association-sponsored research program at the University, will be M. E. Childs, in a talk, "Ceiling Panel Heating versus Conventional Forced Warm Air Heating in the Research Residence with Unheated Basements." N. A. Buckley, also of the

YOU GET THESE

# 6 EXTRAS

- Modern Appearance
- Low Cost
- Less Corrosion
- Easy to Install
- Easy to Clean
- Simple to Repair



*with*

# MAID-O'-MIST

## Boiler Water Level Controls

**Yes, six extras that mean a lot to the man who installs these controls. And these extras are in addition to the safer, more dependable, boiler protection.**

**The new 500 Series of Maid-O'-Mist Boiler Water Level Controls are compact, streamlined and light in weight (only five pounds) . . . because they are built entirely of non-ferrous metals. These controls are highly dependable because of such new features as the "approved" switch used as a circuit breaker in the low water cut-off . . . the rapid snap action of the contacts . . . the generous use of silver . . . the size of the switchgap . . . all making it possible to break large currents without pitting or sticking.**

**STOP**
WATCHING THE WATER LINE

. . . Use Maid-O'-Mist Water Boy Controls for Safer Boiler Protection.

**No. 500 WATER BOY SERIES IN FOUR COMBINATIONS**

Designed for low pressure steam boilers up to 5000 sq. ft. capacity carrying 25 lbs. maximum steam pressure. Come complete with quick hook-up fittings.

No. 577 Water Boy. A combination Feeder and Low Water Cut-off for automatically fired boilers. Switch rating ¾ h.p. 110v. A.C. and 1½ h.p. 220v. A.C.

No. 567 Water Boy. Feeder only. Low water cut-off can be added later to make it identical to No. 577.

No. 568 Water Boy. A combination Feeder and Low Water Cut-off with addition of a signal light that flashes when water drops to ½" in gauge glass.

No. 587 Boiler Guard. Low Water Cut-off only, giving same cut-off protection as No. 577 but without Water Boy Feeder.

**We cannot give you an adequate word picture of the important developments incorporated in these controls. You must see them—try them. Send for catalog No. 500 Now.**

**MAID-O'-MIST INC.**
AUTOMATIC HUMIDIFIERS FOR ALL TYPES OF HEATING SYSTEMS

3221 N. Pulaski Rd. CHICAGO 41, ILL.

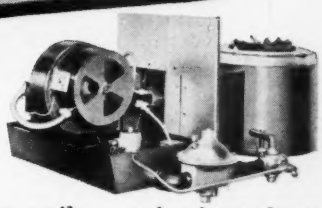
# YOU GET *both!*

## AUTOMATIC GAS HEAT... AND AUTOMATIC OIL HEAT...

## with one burner and one furnace...

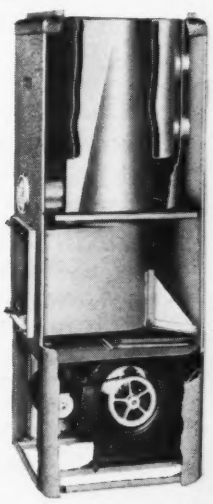
by installing the new, sensational

# Com·Fort 2-FUEL GAS-OIL BURNER-FURNACE UNIT



This amazing Com-Fort 2-Fuel Burner is your money-making sales answer to almost every automatic home heating problem! It burns *either gas or oil* . . . can be changed over instantly from one fuel to the other at the turn of a switch . . . or can be installed with a control that regulates the fuel choice *automatically* in accordance with variations in outdoor temperature. What a sweetheart of a selling story you have here! Now your customers can enjoy *either* gas or oil with the *same* burner . . . can switch fuels in accordance with availability, cost, seasonal loads, etc. Unit, as shown, is designed especially for quick, easy, 4-bolt installation in Com-Fort's R2 Forced Air Furnace (below). Get set now! Be *first* to feature this revolutionary new idea in 2-fuel automatic home heating.

FOR QUICK, EASY INSTALLATION IN



# Com·Fort

## GAS-OIL FORCED AIR FURNACE

This compact forced air furnace — just 66" high x 25" wide x 25" deep — is specially designed to give high heating efficiency when fired with *either gas or oil* using the Com-Fort 2-Fuel Burner shown above. The unit is beautifully finished in blue Hammerloid baked enamel . . . is ideal for basement or utility room installation . . . comes completely set up (burner boxed separately) for quick, easy installation. *This furnace may also be installed with a Com-Fort pressure oil burner, vaporizing burner, or gas burner.*

*Comfort Equipment Corporation*

MAIL TODAY

914 S. MICHIGAN AVE., CHICAGO 5, ILL. WE 9-5353

PLEASE SEND ME ADDITIONAL INFORMATION ON THE COM-FORT 2-FUEL GAS-OIL BURNER-FURNACE UNIT

Name.....

Address.....

I AM A — HEATING CONTRACTOR ☐

— HEATING EQUIPMENT JOBBER ☐

fuel oil & oil heat

University, is going to speak on "Balance of a Forced Warm Air Heating System with Variable Air Quantities."

Committee reports will be rendered by the chairmen of the research advisory, installation codes, publicity and merchandising, low cost housing heating and technical education committees. Guy A. Voorhees, application engineering director for the Association, is to report on the dealer training program during the current Indoor Comfort Conference schedule.

A golf tournament has been arranged on the afternoon of June 21, with bathing and other recreational facilities for non-golfers, as one of the events under the supervision of the convention committee.

◈

## New England OHI Prepares Standard Fueloil Agreement

NEARLY two hundred fueloil agreements and contracts were reviewed by the Oil-Heat Institute of New England, Boston 15, Mass., before the best features of all were incorporated into a standard fueloil agreement.

As finally evolved the agreement is flexible to the extent that it provides a black space in which the words "Current" or "next" heating season can be inserted, depending upon circumstances. Also, paragraph 2 is written to take care of the "Give and Take" method of billing, whereby fractions up to 5/10 of a gallon are billed at the last full gallon and over 6/10 are billed at the next gallon. Such billing is deemed legal only where a specific agreement between customer and supplier is in force.

Members can have their own printers prepare the agreements, or can order them from the Institute's printer in duplicate sets of 1,000, 2,000 and 5,000.

The Institute also has issued a small card for computing heat losses, whereby Btu/hr factors for different temperature differentials are arrived at, allowing for walls, glass, ceilings, floors and infiltration factors.

◈

## Announce Time and Place For Third I-B-R Short Course

THE THIRD I-B-R Short Course on steam and hot water heating systems will be held on the Champaign-Urbana campus of the University of Illinois, beginning June 14 and ending June 17. There will be a beginning course for new students and an advanced course for those who have attended one or both of the previous courses.

A number of lectures on steam and hot water heating problems are being arranged, to augment the actual design of various types of steam and hot water heating systems by the students during classroom periods. Enrollment, as in the past, will be limited, with priority to those who register early.

◈

## ASHVE Bibliography On Panel Heating Research

A BIBLIOGRAPHY has been compiled and published by the American Society of Heating & Ventilating Engineers, New York 10, N. Y., on the subject of panel heating. It contains more than 330 references, and in many cases a brief abstract or critical review, and is available to non-members of the Society at 50¢ per copy. C. M. Humphrey, senior engi-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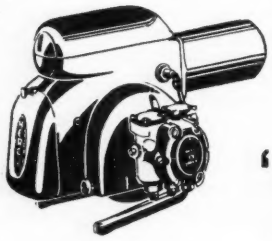

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Model 175
Furnace Cleaner

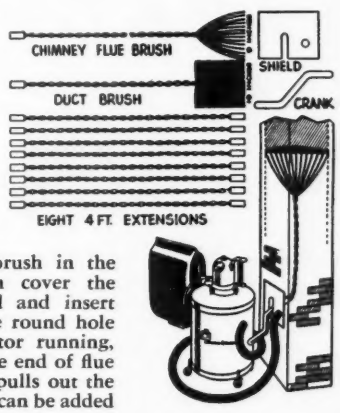
## General Electric applies its skill to improving Furnace- and Chimney-Cleaning Equipment

HERE'S the unit that's designed by General Electric engineers to make furnace cleaning a better business for you!

The G-E Model 175 Heavy-Duty Furnace Cleaner is simple in construction, powerful (1-hp), yet light in weight (51 lbs.). It's designed to clean all types of heating equipment.

The power unit has maximum vacuum of 43 inches water lift. It can be removed from the tank easily. Converts to a powerful blower by removing bag and substituting a blower coupling and a guard.

**Also available is complete chimney cleaning equipment as shown here**




To use the G-E Chimney Cleaning Tools, simply insert the flue brush in the chimney opening. Then cover the opening with the shield and insert the cleaner hose into the round hole of the shield. With motor running, the crank is used to rotate end of flue brush. Powerful suction pulls out the loosened soot. Extensions can be added to flue brush as needed.

**Furnace Cleaners**

**GENERAL ELECTRIC**

*SEND TODAY*

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Without obligation, send descriptive literature on G-E Furnace and Boiler Cleaner equipment.

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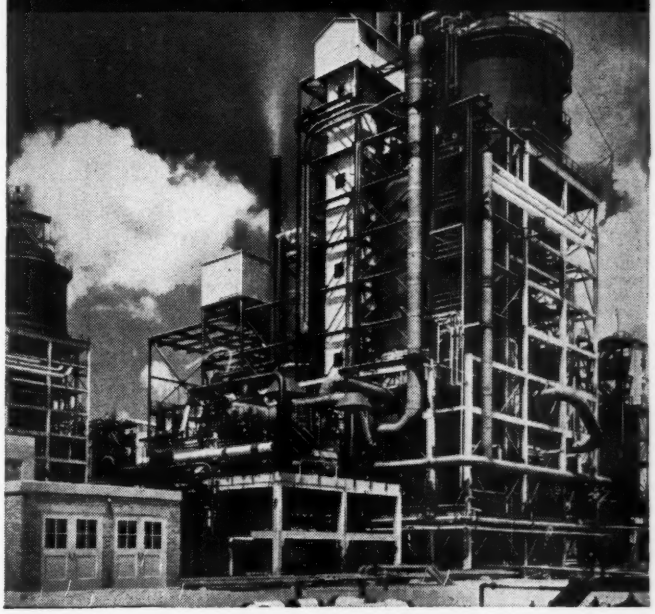
## CITIES SERVICE OIL HEATING SPECIALISTS

*Offer all these Important EXTRAS!*



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neer of the group's Research Laboratory, Cleveland, and Miss Doris M. Dietz, of the staff, did the actual compilation.

Also made public by the Society are the results of a series of tests in determination of heat transfer within and behind a panel. Results indicated that when the heat release from one side of a concrete slab at constant temperature is plotted against the release from the other side, the interdependence of heat flow from the two sides is found to increase as the tube spacings increase.

## I-B-R Announces Two New Installation Guides

PUBLICATION of two new installation guides has been announced by the Institute of Boiler and Radiator Manufacturers, New York 17, N. Y. *Baseboard Heating Systems,* the title of one of the new issues, and designated *Guide No. 5,* explains the selection and installation of baseboards in one-pipe forced circulation hot water heating systems. It includes data also on baseboard installation with other types of systems, such as two-pipe forced circulation, gravity hot water and two-pipe steam.

*Guide No. 100,* the second publication, titled, *One-pipe Forced Circulation Hot Water Heating Systems,* replaces *Guide No. 1,* and contains details for calculating and designing one-pipe systems with mains from ¾" to 1½". It incorporates also data applicable to the use of iron pipe or copper tube for mains, circuits, branches and risers. Price for the two new guides will be 50¢ each. *Guides Nos. 2,* 3 and 4 will remain at 25¢; calculation sheets at 20¢ per pad of twenty-five sheets.

## Wisconsin Group Holds Regular Meeting

A REGULAR monthly meeting of the Wisconsin Oil-Heat Association, Inc., Milwaukee 2, Wis., was held at the Milwaukee Press Club, March 31. The dinner meeting was preceded by a meeting of the board of directors who considered applicants for membership.

Harold M. Mottram, executive secretary, is gathering and compiling information from association members on types and makes of equipment handled and services offered. The data are to be used as the basis for answering questions from consumers.

◈

BLACK, SIVALLS & BRYSON, INC., Kansas City 6, Mo., in part 1, section 6 of catalog 54, pictures and describes Safwalk walkways and loading racks. Safwalk material is described as vari-sized, steel, pre-punched and pre-cut units for building walkways and stairways on storage tanks, tank car loading racks, pumping unit platforms, truck loading docks and similar applications.

"Mr. Davis, will you remember to ask me if I made a memo of the things I'm to remind you of?"


EXCLUSIVE!

NEW! SNAPON LIDS! EASY TO STACK!

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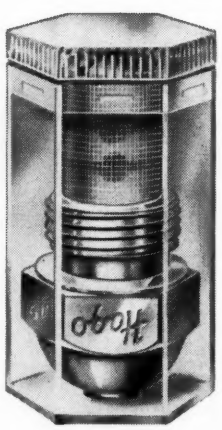

DUSTPROOF! CLEARSITE PLASTIC! HEXAGON SHAPED!

A SUPERIOR CONTAINER FOR A SUPERIOR NOZZLE

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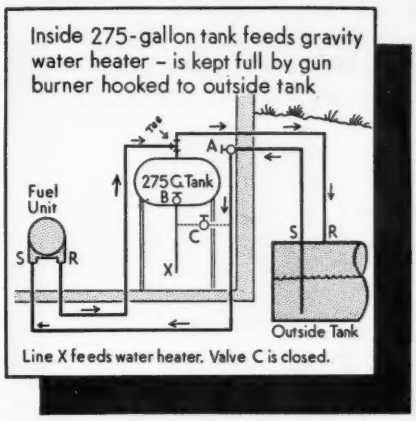
# Everyday Snags

## Inside and Outside Tanks

A Brooklyn, N. Y. service man forwards an idea on two-tank installations, having noticed on page 78 of the March issue of FUELOIL & OIL HEAT a question from P.S.H., St. Louis, about using a pressure burner to give oil by gravity to a pot-type water heater.

To start out, explains the Brooklyn man, a 275-gallon tank was used in this house to gravity-feed a pressure burner and a pot-type water heater. No. 1 oil was used because it suited the water heater's requirements. It was just as well to give No. 1 oil to the pressure burner, remarks the service man, because this reduced the plugging tendencies of the .65 gph nozzle. The pressure burner fired an unusually low-capacity furnace of the winter air-conditioning type.

Two complications arose when the owner decided to install an outside tank of 1500-gallon size. First, the 275-gallon tank could not be removed from the basement without cutting it to pieces, as the house had been altered since this



Line X feeds water heater. Valve C is closed.

tank had been brought into the basement. Removing the old inside tank would be costly. Second, the new, outside tank could not gravity-feed the pot-type water heater.

The equipment dealer selling the outside tank suggested keeping No. 1 oil in the basement tank and gravity-feeding the water heater from this tank, while giving the gun burner No. 2 oil from the new outside tank. The owner turned down this idea, however, for he wanted the trouble-free operation that came of giving No. 1 oil to his pressure burner, and did not want the complications of ordering two different kinds of fueloil and of risking running out of oil in either of two tanks.

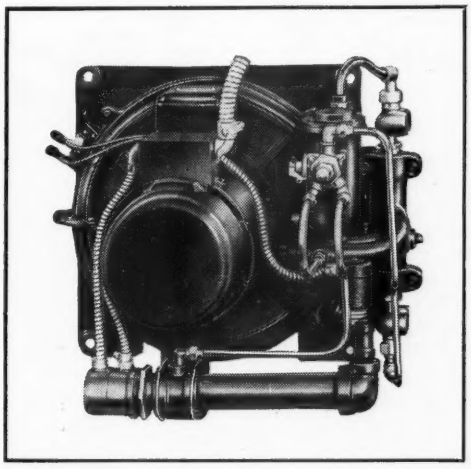
The diagram shows how the matter was settled. The pressure burner draws oil from the outside tank in the usual manner, through the suction line marked S at the tank and S at the burner. The return line of the pressure burner goes to a tee located over the inside tank and arranged so that the returned oil first fills the inside tank, and after that overflows to the regular return line connected to the outside tank. The inside tank holds so much oil that it does not go dry during the summer months when the pressure burner stays idle but the water heater is used.

The service man says the installer of the piping calls valve C a "gravy feature," because having the valve is just so much gravy to the owner if he ever wants to use it. The ease with which the valve could be installed invited providing it. If the outside tank ever runs out of oil in winter, of course the pressure burner will stop even though the 275-gallon tank is full of oil. The owner can give oil to the pressure burner, then,


*For the* **BIG** *heating jobs...*

*there's nothing to equal the world famous*

# JOHNSON 30 AVH



Johnson's time-tested 30 AVH Burner uses preheated heavy oils that keep fuel bills low. It is built in six sizes and capacities to meet virtually any heavy-duty heating need.

**PERFECT for HOTELS, HOSPITALS, OFFICE BUILDINGS**
***and countless other* HEAVY DUTY HEATING JOBS**

**For all around efficiency and fuel economy, the Johnson 30 AVH has never been surpassed. Heating Engineers all over the world have learned from actual experience that they can depend on 30 AVH performance. Probably more big buildings have been heated for more years by 30 AVH Burners than by any other single oil burner model ever built. With complete confidence, we recommend it for your consideration on any heavy-duty job.**

**If the 30 AVH doesn't fit your specifications, there are other fine Johnson Burners that will. For the Johnson line-up is a *complete* line-up; small "packaged" domestic heating units . . . water heaters of every size . . . air, steam and hot water units . . . and a wide assortment of heavy-duty burners. Tell us what you need. We can supply it, and we'll be glad to help.**

There's a Johnson Oil Burner for every heating need

*Johnson Oil Burners*

S. T. JOHNSON CO.
940 Arlington Ave., Oakland 8, Calif.
401 No. Broad St., Philadelphia 8, Pa.

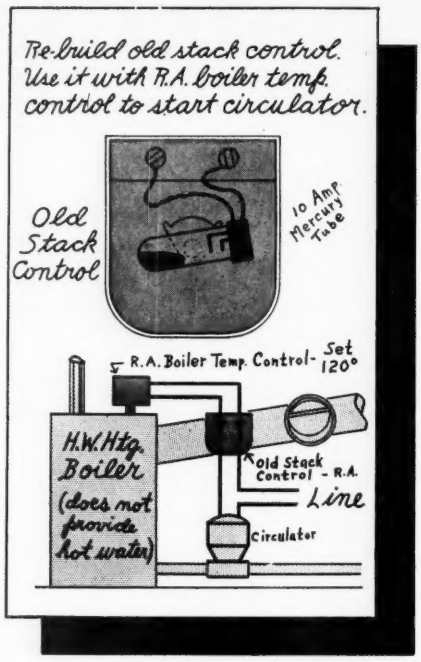
simply by closing regular suction line valve A and opening valve C. Except in such an emergency, valve A is always open and valve C is always closed.

* * *

### Controlling H.W. Circulator

Again and again burner dealers ask how to control the circulators of forced hot water heating plants which do not provide summer-winter hot water.

Connecting the hot water circulator motor in parallel with the oilburner motor, so that both start and stop for the room thermostat, is an obvious, cheap, and simple answer to the problem. But it has certain drawbacks. First, causing them to start two motors simultaneously places a heavier than usual load on the motor starting contacts in the oilburner control panel. This may not overload these contacts in terms of their capacity as lisited by the manufacturers of the controls, yet it may result in the need for more service attention than these contacts usually require. Incidentally, starting two motors simultaneously sometimes causes complaints about the house lights blinking when the burner starts; the considerable voltage drop that causes the lights to blink can delay the ignition and cause a bumpy start.


Re-build old stack control. Use it with R.A. boiler temp. control to start circulator.
Old Stack Control
10 Amp Mercury Tube
R.A. Boiler Temp. Control - Set 120°
H.W. Htg. Boiler (does not provide hot water)
Old Stack Control - R.A. Line
Circulator

The second drawback of starting and stopping the burner motor and circulator motor simultaneously lies in the circulation of hot water from the boiler to the radiators stopping when the burner stops; this traps considerable heat in the boiler. At the end of a long burner run on a cold morning, heat from a red-hot firebox often increases the boiler temperature after the burner and circulator stop together. In certain instances, the temperature of the water in the boilers has risen above the boiling point after the motors stopped. This has caused complaints about the boilers' throbbing and pounding.

Of course, for the sake of fuel economy it is not good to trap considerable heat in a boiler by stopping the burner and circulator at the same time.

Omitting or blocking open the flow-control valve does not always help. With the piping planned for forced-circulation, usually there's no appreciable gravity-flow of water from the boiler to the radiators after the circulator stops, and accidental gravity-flow to certain, favored radiators can produce the desired results only by sheer luck.

The technical men of FUELOIL & OIL HEAT have sometimes recommended that, where best results are desired, the circulator of this type of heating plant be started by a suitable control mounted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Cut Fuel Consumption by

10% TO 30%

The *Preferred* Draft-A-Justor is the original, patented Draft-A-Justor . . . improved to include the latest in engineering developments.

Stainless steel bearings and weather resistant metals provide long-life service without breakdown due to rust or wear . . . assure *continuous* fuel savings.

Millions now in satisfactory use.

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Industrial sizes from 2' x 2' to 5' x 12'.

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Home owners like it! They appreciate a heating unit, precision engineered to fit their exact needs and budget! Offer your prospects an ANCHOR OIL BURNER . . . it conforms to their progressive ideas and fits into their planning perfectly.

Installation is simple and inexpensive. This Anchor Oil Burner is compact . . . occupies minimum floor space. Write for descriptive literature on Anchor's complete line of heating equipment . . . choice franchises now open. Anchor Division, Stratton & Terstegge Co., Inc., P. O. Box 311, New Albany, Indiana.

ANCHOR
OIL BURNER

on the smokepipe and wired in the live leg to the circulator motor. After the smokepipe gas temperature has increased 25° or 50° because the burner started, the circulator is started. Next, a reverse-acting boiler temperature control is wired in parallel with the smokepipe control used for the circulator, with the result that on cold days, when the boiler temperature remains higher than the temperature for which this additional control is set, the circulator will operate continuously. Cooling of the boiler, to say below 120°, of course opens the circuit of the reverse-acting boiler temperature control, while cooling of the smokepipe after the burner stops opens the circuit of the stack control.

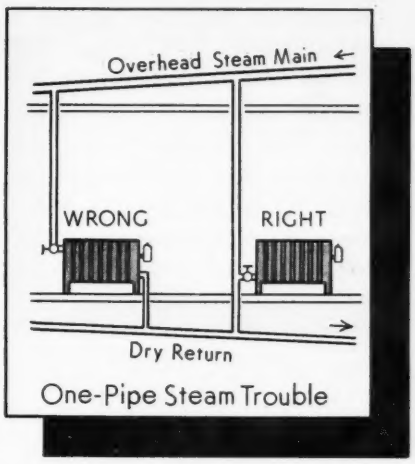
One dealer, in the burner business 25 years and with a good stock of old parts on hand, reports that he makes the special stack control easily through using either of two types of old safety controls which he has plenty of. The diagram shows one of these. He cleans and paints the old controls, substitutes new springs, clutch, and bimetal parts for worn parts, and equips the controls with 10-ampere mercury tubes installed in the way which will cause them to close on an increase in stack temperature. He simply removes one of the mercury switches from some of the old stack controls which have two such switches.

* * *

## Water In Steam Lines

Because in winter the building is used mainly for weekenders, much of the time the heat is turned off in the large recreation hall of a hotel in the Catskill Mountains. The owner complained, after using the heating plant a year had taught him all its tricks, that the oil-burner was mysteriously stopped by the low-water control whenever he turned off the steam radiators in the recreation hall. He gave water to the boiler. Later the boiler waterline became high enough to cause hammering in the mains and radiators, and he had to remove four or five pails of water from the system.

The burner service man, though not a heating engineer or pipefitter, easily diagnosed the trouble as improper piping of the recreation room radiators. Piped as the left part of the drawing shows, these radiators were still connected to a wide-open dry return line when they were turned off. Also, with the radiators turned off, water filled the downfeed risers above the radiator shut-off valve, and in addition these risers failed to drain the overhead steam main of condensate.



One-Pipe Steam Trouble

* * *

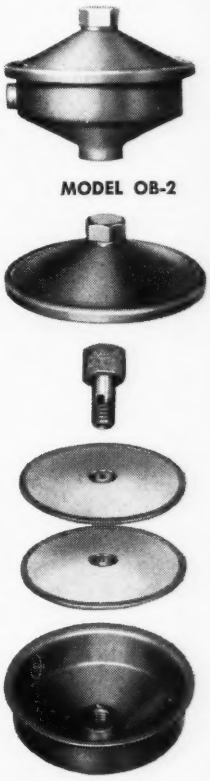
## Air Compressor Trouble

Doing work in many pretentious homes, this burner dealer has run into many unusual troubles, but this was a new one even for him.

The owner of this large home,


# NEW AMAZING EFFICIENCY
## in fuel oil filtration
# SPARKLER
## FUEL OIL FILTER MODEL OB

**See it displayed** for the first time at
**National Oil Heat Exposition—Boston.**
**Booth 769**


MODEL OB-2

An entirely new principle of filtration for fuel oil is employed in the new Sparkler Model OB filter. The new principle is SURFACE TYPE filtration which is more efficient in removing fine particles of dirt and jell deposits than the common deep type filter.

Surface type filtration has long been the standard method in industrial filtration of chemicals, foods, edible oils, varnishes, plating solutions, and many other products.

In the refining of petroleum products such as the processing of lubricating oils, heavy diesel oils and other heavy oil stocks, Sparkler surface type of filters have been used for many years to remove minute impurities and improve the color of the product.

Now Sparkler has applied this highly developed surface type of filtration to a fuel oil filter, and for the first time made available to the oil burner trade a kind of filter that has proven itself in the petroleum and other industrial fields.

**DISTINCTIVE FEATURES**

1. **Filter elements have controlled and graded porosity. Synthetic, filtering material eliminates possibility of fibres getting into nozzle screens.**
2. **Large filtering area obtained by unique design of hollow disc units, utilizes maximum filter surface in minimum of space.**
3. **Positive mechanical seal, oil cannot by-pass filter element.**
4. **One set of filter elements lasts entire season in average home burner installation.**
5. **Underwriter's approved, labeled.**

**AVAILABLE IN THREE SIZES**

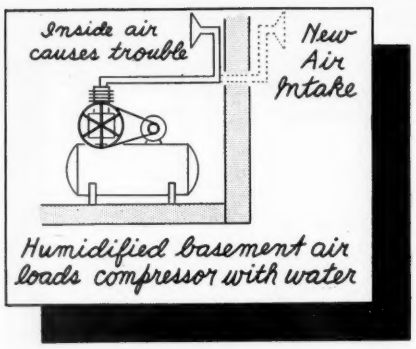
**Model OB-2** for the average home (2 filter discs)
**Model OB-6** (6 filter discs) and
**Model OB-12** (12 filter discs) for larger installations. Apartment buildings, institutions, etc.

Replaceable filter element packaged in units of 2, 6, and 12 discs for each of the three sizes of filters. Convenient to stock for the jobber, easy to use by the service man.

**SPARKLER MANUFACTURING CO.**
**Mundelein, Illinois**

equipped with pneumatic heat controls, became humidity-conscious after his wife had presented him with some elaborate temperature and humidity indicating instruments. As a result, the equipment dealer fitted the warm air furnace in the house with a humidifier which did not fool around, being capable of evaporating something like 24 gallons of water per day. The owner then obtained the humidity readings he desired, although at times he also obtained ice and moisture on window panes which he did not desire.

Within a month, the burner man was blamed for considerable trouble with the pneumatic temperature controls in the house. He could not understand how he had caused this trouble until the specialist from the manufacturer of the special controls proved to him that the control air lines and instruments were waterlogged, and that this was caused by the compressor's taking in exceedingly moist air in the equipment room. The trouble was ended by installing a line which gave the compressor air from outdoors. Checking, the burner dealer learned




that the pneumatic control manufacturer always emphasizes that its compressors should take in only outside air, and that therefore the trouble hinged on improper piping of the compressor at the time it was installed.

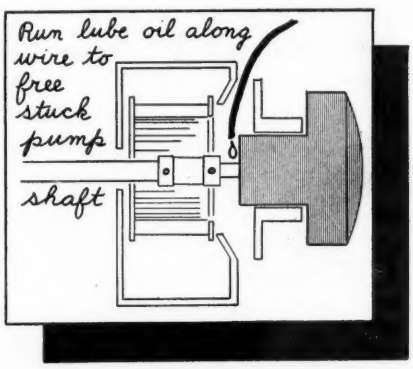
* * *

### Burner Can't Start

The exceptionally small pressure burners installed by one dealer before the war have been watched carefully and have provided him with some interesting data.

Equipped with 1/20 hp motors, which according to the dealer are of excellent design, during the first few years they were used these burners showed a slight tendency to fail to start after being idle for the summer months. The starting winding of one motor burned out as a result. To prevent additional burnouts, the dealer sold good motor overload protection devices to the owners of the small burners, and instructed them to budge the motor shafts by hand if necessary after months of summer idleness. The owners turn off their main switches in summer and, on desiring heat, are supposed to observe the burners to make certain the motors start when they are given current.

Later, an additional small complication caused service calls. Even during





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Yes, here's your "in" to increased business and profits! The famous Grand Rapids Furnace Cleaner not only gets you into the customers basement but gives you an excellent opportunity to check over each heating plant as it is cleaned.

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DESIGNED AND PATENTED
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Two important advantages for manufacturers whose pressure type burners are equipped with the new SHELL DESIGN COMBUSTION HEAD—

1 Economy of fuel. Field tests indicate 20% and more oil saving. A $CO_2$ as high as 15% is obtainable with no smoke, even when using 100% catalytic fuel oil. The oil situation makes such economy a positive necessity, and the CUSTOMER SATISFACTION produced is a real SALES PROMOTER.

WE SOLICIT INQUIRIES FROM MANUFACTURERS OF OIL BURNERS

2 Replacement of obsolete, inefficient burners by burners equipped with the NEW SHELL DESIGNED COMBUSTION HEAD will be quickly paid for out of oil savings!

*Manufactured by*
MODERN DIE AND MACHINE COMPANY
166 PLEASANT STREET, BOSTON 25, MASS.
Under license from the Shell Development Company

the heating season, at times the pump shafts started sticking slightly. In answering the first service calls caused by this, the dealer's men played safe and removed the fuel units, then tried to work a mixture of gasoline and light lubricating oil into the fuel units along the pump shafts. This seemed to end the trouble for at least a year, but proved timetaking and costly. At present, unable to reach the rather inaccessible pump shafts with an oil can spout, the men are making the shafts run freely by running the gasoline and lube oil mixture to the proper place along a stiff wire as the diagram shows. The wire trick oils the pump shaft in five minutes, whereas removing and replacing the fuel unit, for the thorough job done earlier, used to take more than an hour. So far, it seems that the second method solves the problem.

* * *

### Insufficient Draft

Improving smokepipe draft by filling the base of a chimney up to the level of the bottom of the smokepipe, and by providing ample upward smokepipe slant, was mentioned on page 116 of the March issue of FUELOIL & OIL HEAT as the method used to end the flame pulsation of a forced-circulation warm air furnace. Pages 74 and 76 of the same issue indicated suitable sizes of auxiliary air openings, often used to end flame pulsation trouble.

The field engineer of a furnace manufacturer adds this on the subject of getting higher draft readings in an effort to end flame pulsation. With many furnaces, if smoke outlet draft as high as .07" water cannot be obtained, flame noise or pulsation may relate to insufficient draft. Increasing the smoke outlet draft from .04" to .07" recently ended, for example, the pulsation trouble that had been playing hob with a certain burner dealer's peace of mind. In this case, the draft was improved by sealing the air leaks in the smokepipe and insulating with asbestos cement the 16 ft. long smokepipe. Because it increased the chimney temperature, the insulation caused the chimney to draw better.

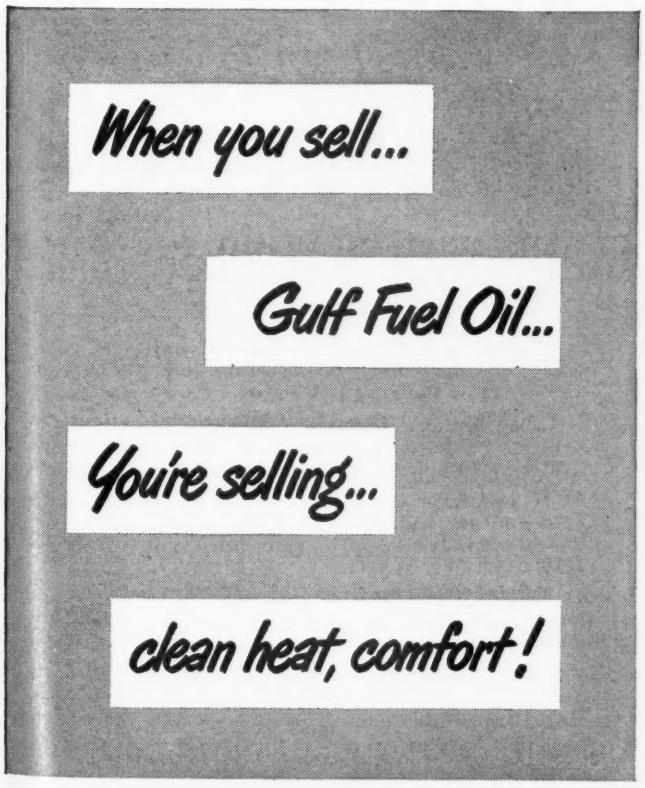
If you aim for .07" smokepipe draft and are not getting it, says this engineer, check to make certain that, when in its closed position, the smokepipe draft regulator does not leak great amounts of cold air into the smokepipe. Where you have insufficient draft, he suggests, you'd better try fastening the draft regulator closed, and smearing furnace cement over any cracks in it which form air leaks.

Agreeing with FUELOIL & OIL HEAT items which have emphasized the need to try many different nozzles, of both full-cone and hollow-cone types, in efforts to end flame noise and pulsation, this furnace engineer says that efforts to arrive at smooth, silent combustion have not been started until at least six different nozzles have been tried.

* * *

### Horizontal Rotary Burners

Men who first service gun burners and then advance to servicing big horizontal rotary cup burners often need this pointer on adjusting the fire. In the big burners, the blower air serves to help atomize the oil and shape the flame, as well as for providing oxygen for combustion. Always bear this in mind when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AUTOMATIC
CONTROLS
TODAY •
GENERAL CONTROLS
MODERN, COMPACT
SNAP-ACTION T-70 THERMOSTAT
Sets a new standard of Functional Beauty and Accuracy in remote control of room temperatures. This graceful, streamlined instrument extending only 1" from wall, has a stainless housing mounted on an ivory plastic base and lends enhancement to any scheme of room decoration.
The T-70 can be used either with the famed GENERAL CONTROLS B-60 "All-Gas" or the T-30 low voltage control systems, or any other standard low voltage control circuit.
REQUEST FREE LITERATURE
44-4
GENERAL CONTROLS
801 ALLEN AVENUE GLENDALE 1, CALIF.
Manufacturers of Automatic Pressure, Temperature, Level & Flow Controls
FACTORY BRANCHES: Birmingam (3), Boston (16), Chicago (5), Cleveland (15), Dallas (2), Denver (10), Detroit (8), Glendale (1), Houston (6), Kansas City (2), New York (17), Oklahoma City (1), Philadelphia (40), Pittsburgh (22), Seattle (1), San Francisco (7), St. Louis (12) • • DISTRIBUTORS IN PRINCIPAL CITIES

adjusting the damper that controls the amount of air the blower gives the flame.

Don't make the mistake of trying to get a good-looking, rich fire and high $CO_2$ readings by cutting down only on the blower air. Cut down also or instead on the amount of secondary air that is given the fire through the openings in the front or the floor of the firebox. If the installation has no adjustable secondary air damper, you can reduce the secondary air flow by cementing slices of insulating firebrick, cut to shape with a hacksaw blade, in the secondary air entrance. Or instead, use the smokepipe draft regulator to feed more or less secondary air. Higher draft means more secondary air.

In checking a horizontal rotary cup burner, make certain that there's enough lubricating oil in the reservoir with which most of these burners are equipped. With many of the burners, you stop the motor and look in a big oil cup on the side of this reservoir. The level of oil should be so high that raising it about half an inch would cause oil to spill out. It's good to drain out the old oil and refill with fresh oil at least every two or three years. Fairly heavy automobile engine oil, perhaps up to SAE 50 viscosity, serves well for many of the burners, but it's best by far to check with the burner manufacturer to make certain you are using precisely the oil recommended for the particular make and model burner.

### Use Vacuum Gauge

Have a vacuum gauge with you when you go troubleshooting burners that use the heavy oils. There may be oil pumping problems which you can solve quickly only by finding out how much vacuum the oil pump usually develops in drawing oil from the storage tank, and how much vacuum the pump can develop with the suction line valve tight-closed. Vacuum gauge readings are needed far more often in servicing the big burners than in servicing gun burners.

To check for ignition system trouble, render the burner motor unable to operate by removing the electric plug that gives it current or by disconnecting its feed wires, then turn the main switch on and off a dozen times and make certain the gas-electric ignition system goes into action properly each time. It helps to have someone else turn the switch on and off while you use a good flame mirror to check on the inside of the firebox and observe closely what goes on where the electric spark and gas jet are located. If low-quality manufactured gas is found in the particular city, as it is today in many areas, you may gain information by checking on the performance of the other gas-using pieces of equipment in the building. Find out if a gas range or water heater, for example, has been performing poorly because of gum in the gas lines, low gas pressure, or poor operation of a plugged gas meter. On one call, the service man spent an hour taking apart the gas-electric ignition system of a big burner that would not light the oil, before he inquired about the gas ranges in the kitchen of the cafeteria in the building and learned they were not working because the gas pressure had dropped to nothing. The gas meter, not the oilburner ignition system, had gone on strike.


Handy! $CO_2$ INDICATOR VISI-DRAFT GAGE AND LEVEL STACK THERMOMETER

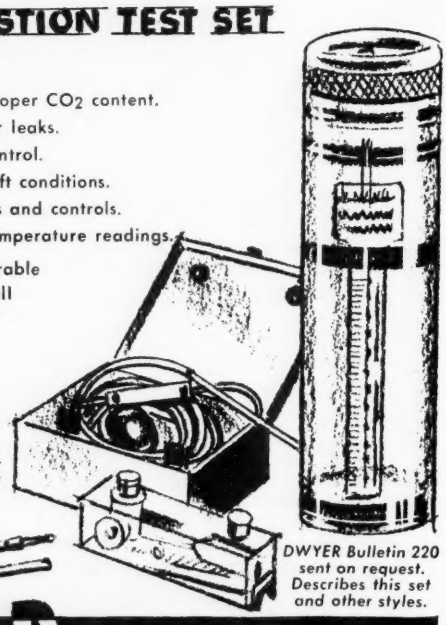
ALL IN THE DWYER TRANSPARENT

COMBUSTION TEST SET

DO ALL SIX:

1. Determine proper $CO_2$ content.
2. Check for air leaks.
3. Adjust air control.
4. Establish draft conditions.
5. Level burners and controls.
6. Find stack temperature readings.

Set includes durable carrying case, all accessories and instructions.



ACCURATE FAST ECONOMICAL

DWYER Bulletin 220 sent on request. Describes this set and other styles.

F. W. Dwyer Mfg. Co.

315 SOUTH WESTERN AVENUE, CHICAGO 12, ILLINOIS



AN OPPORTUNITY TO MAKE $8,000 TO $12,000 THIS YEAR

– WANTED –

EXPERIENCED HEATING SALESMEN

IF You'd like to work with a live-wire outfit
With a product that has the whole industry talking
And get in on the ground floor of a growing company

WITH Free Factory Training • Exclusive territories • Generous Company Policies • Work Direct with Dealers • Immediate Earnings • Unlimited Future •

AND If you have experience in the air conditioning field and are willing to travel your local area on a commission basis—with your own car—YOU'RE THE MAN WE WANT

FOR METROPAC: The sensational winter air conditioner with Built-in, Year Around Domestic Hot Water Storage

SEE: Mr. Robert Pyne, National Sales Director, at Booth 213, National Oil Heat Exposition, Boston, May 16 to 20th

OR WRITE: METROPAC SALES DIVISION, 135 Main Street, Everett 49, Mass., giving full details, including previous territories worked and approximate volume attained.

More on the Metropac—Page 129 This Issue

All Inquiries Will Be Confidential—Of Course

## Lionel Jacobs Shifts To Oil Boiler Firm

LIONEL JACOBS, who has been president and majority stockholder for almost ten years of Automatic Heat, Inc., Philadelphia 41, Pa., became chairman of the board on April 1. J. A. MacDougall, formerly manager and assistant treasurer, became president and treasurer. He had been connected with the operation for a number of years prior to the branch being sold by Timken Silent Automatic Division to Mr. Jacobs and his associates. For some time Mr. Jacobs has had an interest in V & E Products, Inc., Schuylkill Haven, Pa., manufacturers of steel heating boilers and units, and with his son, Bruce, will distribute V & E products and other lines in several eastern states. In addition, Mr. Jacobs has been elected executive vice president of V & E, responsible for their entire national distribution.

◈

*T. J. Manning,* newly named assistant to the president, Evans Products Corp., Plymouth, Mich., has a wide background in financial, labor, manufacturing and managerial affairs. His previous associations include Howell Electric Motors, where he was vice president, and with Graham Paige Corp. as comptroller.

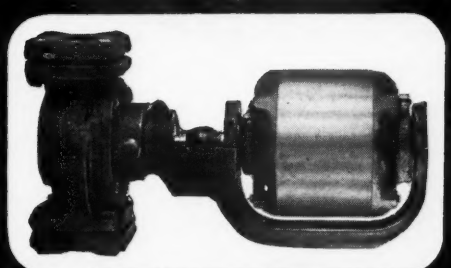
*Ross M. Clark,* manager, San Francisco sales office, American Radiator & Standard Sanitary Corp., Pittsburgh, Pa., died suddenly on March 31. He had been with the company, and its predecessor, since 1914, when he was employed as a junior salesman in the Los Angeles office. Subsequent promotions advanced him to the position of manager San Francisco branch in 1923 and in 1939 to assistant manager of the San Francisco sales office. Four years later he was named to the position he occupied at his death. Mr. Clark was 60 years old and is survived by his wife and two sons.

*John G. Wilsey* has been promoted to the position of manager, Hair Filter Sales, Wilson & Co., Inc., Chicago, effective April 1. He joined the Hair Filter staff late last year and has been associated with the heating and ventilating industry since 1932. He has worked as a jobber and dealer salesman and managed a heating business of his own.

"He willed his heart to science --- and the last I heard, they're still looking for it"

*T. H. (Ted) Smoot* has resigned as vice-president and chief engineer of Anchor Post Products, Inc., President W. F. Brannan has announced. *John S. Case,* former vice-president in charge of production will head engineering activities as well as production, with *Don Wooden* as assistant chief engineer in charge of the Fluid Heat Domestic Division. *C. W. Woollen* also will assist Mr. Case as assistant chief engineer in charge of the Specialized Heating Division.


GLOBE Hot Water CIRCULATORS



QUIET! TESTED! GUARANTEED!

SAVE ON THIS QUALITY-ENGINEERED CIRCULATOR

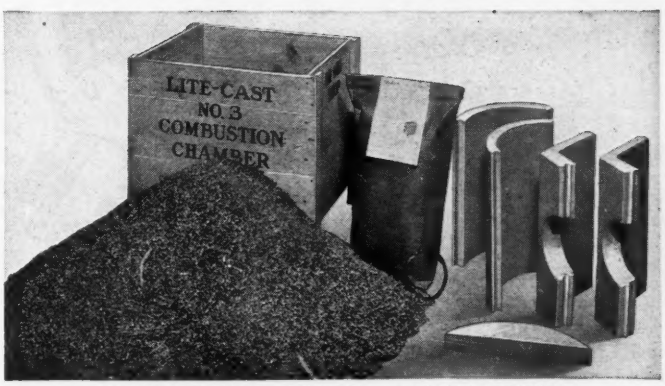
- Extra long, oil-impregnated bronze Bearings
- 1/6 hp. Westinghouse, or equivalent, Motor
- Patented, rotary-type carbon and bronze Water Seal
- Flexible Neoprene Coupling

*Precision-engineered, tough, and rugged. The GLOBE Hot Water Circulator cost less than other circulators of comparable quality.*

Manufacturers of Low Water Cut-Offs and Controls for a Quarter Century.

GLOBE CONTROLS CO.
81 WARREN ST. NEWARK 2, N. J.
EXCLUSIVE TERRITORIES AVAILABLE

truly TIME-TESTED




STANDARD PEAR SHAPED — PACKAGE UNIT
Everything included in wooden box for complete installation

ROUND—RECTANGULAR—AND SPECIAL SHAPES ALSO AVAILABLE

OVER ¼ MILLION INSTALLATIONS

LITE-CAST
COMBUSTION CHAMBERS
SOLD BY
LEADING JOBBERS NATIONALLY

MONOGRAM
PRODUCTS COMPANY
731 N. 35th ST., PHILA. 4, PA.

## *Oilheating Trends*

(*Continued from page 11*)

it was a matter of a supply shortage, while this year price was the determining factor. The fueloil marketers have gone through a half a dozen price drops since the first of the year, and until confidence in a stable market is re-established, they can hardly be expected to fill their tanks. Many of the larger suppliers believe that if crude prices do not break before May 10, fueloil prices can be expected to stiffen up a bit, since refinery runs have been sharply curtailed.

Stocks of Kerosene and No. 1 fuels on April 1 stood at 25% of bulk plant capacity, with these geographic variations: New England 32%, Mid-Atlantic 25%; The South 24%; and the Midwest 19%.

FUELOIL PRICES AND MARGINS: An interesting phenomenon in fueloil industry economics has been the rise in average distributors' margins during the same period while prices were falling. A lot of fueloil men had felt that as prices rose during the past couple of years, their margins should have gone up in a direct percentage ratio. This thinking discounted the fact that the oil industry had never worked on that basis. If the major suppliers had ever been convinced of the soundness of percentage basis for margins, then the local fueloil men would now be complaining over shrinking income. It was a fortunate coincidence that the major suppliers had become aware of the need for higher margins, to offset rising costs at just about the same time that market surpluses forced price down.

**Average Fueloil Prices and Margins**

| | —December 1, 1948— | | —April 1, 1949— | |
|---|---|---|---|---|
| | Price | Margin | Price | Margin |
| New England | 12.97¢ | 3.09¢ | 11.78¢ | 3.13¢ |
| Mid-Atlantic | 12.15 | 2.71 | 11.20 | 2.73 |
| Midwest | 13.85 | 2.45 | 12.68 | 2.79 |
| Pacific | 11.20 | 2.41 | 11.50 | 2.51 |
| U. S. Average | 12.64 | 2.68 | 11.72 | 2.80 |

The margins shown in the table include both those companies having their own bulk plants and those filling their trucks at terminals since this is not intended to be an exact margin study, but rather simply a time comparison of average prices and margins over a four-month period. Since the April 1 date of these latest prices, there have been some further price declines, particularly on the East Coast, and without reducing margins.

FUELOIL SELLING METHODS: Nearly every fueloil marketer wants to increase his gallonage now that supply has again become very adequate. Every individual operator has certain habits that guide his organization in going after business. It is interesting, however, to make a check of selling practices throughout the industry to find what principal sources bring new fueloil business. The table that follows shows five principal methods, and their relative importance by sections of the country.

The most significant fact in the table is that just half of all new fueloil customers result from burner installations by the fueloil marketer.

Among those fueloil distributors who get some accounts from oilburner deal-

**If you are looking for pumps that will give dependable, trouble-free service, learn about Vikings! Simple gear-within-a-gear design, with two moving parts, and rugged precision construction fit Vikings for the toughest kind of pumping jobs you can have. You'll find a Viking pump in the style and size you need, correctly engineered to do the job . . . to handle any clean liquids, regardless of viscosity.**

VIKING
AN HONORED NAME IN PUMPING

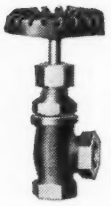
**For Complete Information About Viking Pumps, Write For A Free Copy of BULLETIN 1500EE**

See Our Catalog In SWEETS

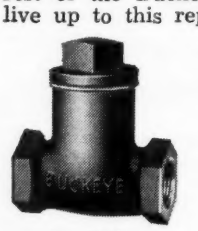
**Viking** PUMP COMPANY
Cedar Falls, Iowa

# From tank to oil burner... ACCESSORIES by Buckeye

**As one** of the foremost names in the oil industry, "Buckeye" on your equipment signifies the ability of the equipment to *do* the job it was made to do . . . and to do it efficiently, economically and with a minimum of maintenance. These fittings, like the rest of the Buckeye complete line, live up to this reputation.



**No. 4061 Angle Shut-off Valve**
Needed on every line for emergency. Full capacity when wide open.



**No. 4060 Globe Strainer**
Sturdily and carefully made to clean oil before it enters the burner. Easily cleaned.

**No. 4012 Angle Strainer**
Widely used to eliminate impurities in the oil as it goes into the burner. Easily cleaned.

**No. 4062 Globe Shut-off Valve**
To close line for burner repair or replacement. Built for long life.

**No. 79 and No. 444 Swing Check Valves**
Disc lifts out of line of flow while pump operates.

*Buckeye also manufactures Fill Caps, Fill Boxes, Sludge Pumps, Vents, Foot Valves and Bushings.*

**BUCKEYE IRON & BRASS WORKS, Dept. F**
**P. O. Box 883, Dayton 1, Ohio**

McCORKLE 412 PKG. SET

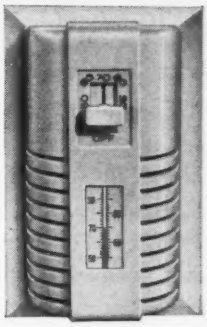
A NEW LOW COST CONTROL

*For Natural Draft Burners*

Easy to install—just plug it in. No licensed electrician required.

Emergency operating lever—automatically resets.

Accurate dependable Thermostat with positive night cut off.



HIGH QUALITY—LOW PRICE

**D. H. McCORKLE CO.** Box E, Station A, Berkeley, Calif.


Sources of New Fueloil Customers

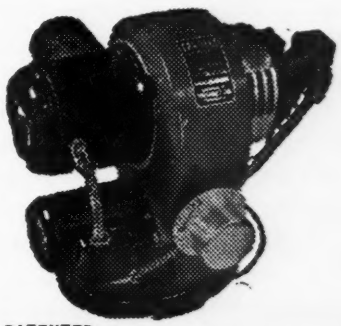
| | *New Eng.* | *Mid-Atl.* | *Mid-west* | *Pac. N. W.* | *U. S. Avg.* |
|---|---|---|---|---|---|
| Through new burner installations | 54% | 45% | 55% | 46% | 50% |
| Personal solicitation | 23 | 15 | 13 | 17 | 16 |
| Advertising leads | 5 | 3 | 3 | 6 | 4 |
| Old customer recommendations | 8 | 19 | 16 | 18 | 16 |
| Through burner dealer commissions | 1 | 3 | .. | 2 | 2 |
| Other sources | 9 | 15 | 13 | 11 | 12 |

ers by giving them a commission on the gallonage, approximately half of them pay one-half cent commission, 42% pay one-fourth cent commission, and the remaining eight percent pay varying amounts, usually higher than one-half cent. On approximately two-thirds of these deals the oilburner man is given the fueloil commission each year as long as he can hold the account. On the others he is paid for the first year only, and this group includes those situations where a fairly high commission, such as three-fourths of a cent, is paid. Approximately one-sixth of all reporting fueloil distributors make commission arrangements with one or more oilburner dealers, but this brings in a relatively small share of their total new business, since the table shows that throughout the industry only two percent of new customers come by this route.

DEALER COMMENTS: Typical of dealer comments on fueloil selling are these . . . "We are on a three-cent margin but there is considerable price cutting by the peddlers" . . . "We have dropped our prices sharply but with no startling results" . . . "In this territory it is a must item today to pay at least one-half cent on all new oil business" . . . "Again it looks like dog-eat-dog. The dealer complains of the major companies not giving them a big enough margin and just cut the prices" . . . "From the newspaper ads it seems that the best way to sell fueloil is at a reduced price" . . . "Get refiners off the fence and let the as soon as business wanes a little they public know there is plenty of oil" . . . "We are going to have to start knocking on doors" . . . "We get new business by seeing the people and through new burner sales" . . . "We get business from phone solicitation and through service men" . . . "The fueloil dealers in our town are dead from the waist both ways; we supply them all their leads (oilburner dealer)" . . . "I pay my own drivers and service men $5 for each lead that we can sell an oil contract, also $10 for an oilburner lead, and $25 for a boiler-burner unit lead, and this works very well."

"I'm expecting my wife in an hour, Pierre... make up my secretary as an ugly old hag"


CUT FUEL COST NOW



PATENTED

WITH THE *NEW* TRU-HEET OIL BURNER

*Equipped with*

SHELL DEVELOPMENT CO. COMBUSTION HEAD

*Also*

Many Other New Features

- $CO_2$ high as 15%—no smoke
- Fuel savings high as 30% and over
- Oil rate 0.50 to 10.00 G.P.H.
- Thousands of proven installations, since 1945

Also Boiler & Warm Air Units

*Direct your inquiries to*

TRU-HEET COMPANY

542 MILLER AVE.

TRENTON 10, N. J.

*Manufacturers of Fine Oil Burners Since 1928.*

## *Sales Recruiting*

*(Continued from page 65)*

much of the territory he is going to cover. Too much business can be as disastrous as too little.

A dealer in a city of 1,000,000 population might well find that he has a potential market of more than 100,000 qualified, owner-occupied homes. This would call for 34 or 35 salesmen to cover the territory as intensively as it should be covered, but such a sales organization calls for large amounts of capital, a big installation and service staff and a proportionately large physical plant. Few dealers in the country are set up to do a proper job on all of such a market. If the dealer's facilities are of a size to handle 9,000 qualified homes, calling for three salesmen, it is equally wasteful to turn three men loose on 100,000 qualified, owner-occupied homes. The market is too big and scattered for the men to work it efficiently. There always is the temptation to drive to the other end of town to make the next call.

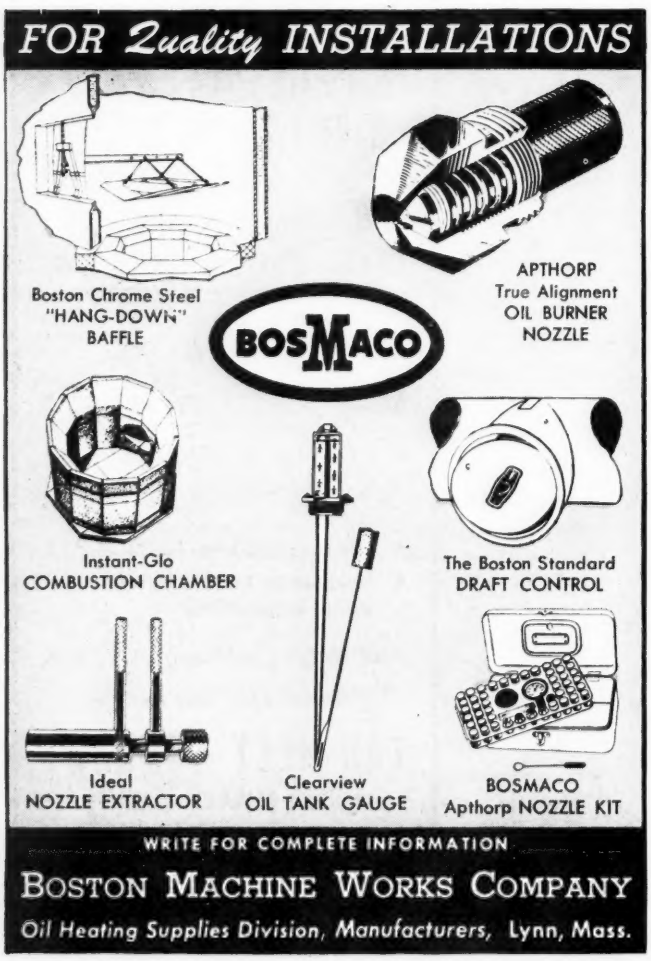
Depending on the amount of business a dealer organization can handle efficiently a territory must be selected to yield that business and not much more. The territory should be limited physically—bounded by definite streets—and the number of salesmen determined to work that territory properly, each with a definite, physically bounded area. Definite territories for salesmen encourages the concentration needed to get the thorough and efficient coverage any sales territory deserves. Indefinite, sprawling territories invite thin coverage by the salesman—and by the dealer.

### Recruiting A Large Force

The dealer with the market, capital and facilities to support a large sales force of possibly fifteen men or more has a larger and more intensive recruiting problem than the medium or small dealer. One of the principal duties of the salesmanager in such an organization is to build and maintain an adequate sales force. Some method of multiple recruiting is essential if the force is to be kept up to strength, for as indicated before, there will be turn-over in a sales-force of such size. Further, it may be advisable to increase the sales force for the spring and fall selling seasons and for such campaigns as are planned. The nucleus of the force—those proven salesmen who will be more or less permanent—will work better and be stimulated by new men and the competition they will generate within the organization.

For multiple recruiting in which a number of men are hired at one time, no successful substitute has been found for newspaper advertising. It exposes the company's needs to the greatest number of prospective men at a reasonable cost. Once the men have been found and their interest stimulated to the extent of appearing for an interview, the screening process begins.

There are three levels at which screening is accomplished. First, the advertisement should be so worded as to discourage idle curiosity seekers and those with no real desire to work. Secondly, there should be a comprehensive application form which the man should fill out completely before the interview, and lastly, the interview itself should eliminate those who do not measure up to the reqirements. It should be remembered that



FOR Quality INSTALLATIONS
Boston Chrome Steel "HANG-DOWN" BAFFLE
APTHORP True Alignment OIL BURNER NOZZLE
BOSMACO
Instant-Glo COMBUSTION CHAMBER
The Boston Standard DRAFT CONTROL
Ideal NOZZLE EXTRACTOR
Clearview OIL TANK GAUGE
BOSMACO Apthorp NOZZLE KIT
WRITE FOR COMPLETE INFORMATION
BOSTON MACHINE WORKS COMPANY
Oil Heating Supplies Division, Manufacturers, Lynn, Mass.

the training period also will eliminate some of the applicants, and it usually is necessary to have more men in training than the number actually required to bring the sales force up to strength.

Newspaper advertisement can be either "blind" or "exposed." The blind ad will not reveal the name of the company or possibly the nature of the product. Usually it asks applicants to report to a hotel or club for an interview with a particular man. The exposed ad generally carries the company's name and address, if this will be a factor in attracting qualified men. If the equipment is nationally advertised and well known, it may be advisable to feature it in the ad.

The dealer or salesmanager will do well to remember that he is going to attract a number of men who do not know what they want to do. Such men are looking for work, either because their former employment is no longer open to them, because they are dissatisfied with it and want wider opportunities, or because they do not know what type of work they want to do. The ads may take several forms, but essentially they sell the job to the man. Frequently the copy is directed to a single man, regardless of how many may be wanted. For best results it should have a heading and plenty of white space around it. A short ad that might be used by a large or small dealer may read:

SALESMAN

We are looking for an experienced specialty salesman for year around employment. This is a man-sized job with a man-sized income for the right party. See J. M. Smith at the City Club, Monday morning.

An ad with more selling and occupying more space might read:

SALESMAN

Somewhere in Hometown is a man who is seriously and conscientiously looking for an opportunity to join a company with a product that merits his greatest full-time efforts.

Our industry has proved itself with the public and enjoys wide acceptance.

The unit of sale runs upwards to several thousand dollars on some units. Any man who honestly wants to establish himself will find an opportunity here. I want to talk to serious-minded men only. If interested see me in Parlor D, Statler Hotel, Monday morning. J. M. Smith.

If the comany name or the trade mark of the product is well known in the area and will help to interest the right kind of men, perhaps it should be used in a prominent position in the ad, such as this:

(TRADE MARK OR COMPANY NAME)

Local distributor for one of the leading manufacturers of oilheating and air conditioning equipment desires to expand its organization to cover the expanding market, and offers this opportunity. Will train limited number of serious-minded men looking for permanent, full-time job worthy of their best efforts.

Training includes practical selling and full course in fundamental heating engineering.

Hard work and sales persistence covering leads from local and national advertising insures year around employment and an excellent income to the right man. Experience desirable but not essential. Apply Home Comfort Company, 100 Main St.

The interview primarily is a selling job on both sides. The applicant is selling the dealer or salesmanager his ability to do the job, and the interviewer should be selling the man on the opportunity and desirability of the job. The salesmanager should have his interview written and well in mind. It is an important sale to influence a man's future, and

IMITATED...BUT NEVER DUPLICATED

Like the proverbial "Monkey sees, monkey does" our famous AT-A-GLANCE tank gauges have many imitators. You can rest assured however, that for guaranteed quality and lasting satisfaction, there is nothing on the market quite like our original. Be sure — before you buy. Write for literature and descriptive details of important features.

*On Guard 24 hours a Day!*

KRUEGER *Sentry* GAUGES

GREEN BAY • WISCONSIN

THE NEW OIL BURNER AE MOTOR

1/8 HP, 1725 RPM, 200% Starting Torque . Equivalent To Many 1/6 HP Motors.

*World's Lowest Price!*

SPECIAL PRICES TO BONAFIDE OIL BURNER MANUFACTURERS

**Acclaimed by oil burner manufacturers the world over. None can compare with its economical operating performance. It enjoys incontestable superiority in the field. A-E features: manual-reset overload protection; attractive design; high quality, precision-machined parts; hand-wound stators, impregnated with high dielectric insulating varnish; extremely large wool-packed oil reservoir; completely enclosed housing; strong, lightweight aluminum alloy end bells; reinforced mounting lugs; statically and dynamically balanced rotor.**

All ANCO Products Unconditionally Guaranteed For One Year Against All Manufacturing Defects

Approved By Underwriters' Laboratories, Inc.

ANCO PRODUCTS CORP.

907 EAST 23RD ST. • PATERSON, N. J.

should be skilfully done. Usually a likely applicant is not asked to make up his mind at the end of the interview, and the dealer or salesmanager does not have to commit himself if he does not want to. The man is invited to take the training course of a week or ten days, during which time the dealer has an opportunity to further sell the man on the job, and to observe him more closely and judge his qualifications as a salesman. This training period is almost essential when large numbers of men are handled at one time, since it is not possible to have as much close personal contact with each man as in smaller organizations that may be training only two or three men at a time.

### Other Recruiting Methods

Medium and small dealerships will be interested in fewer men at any one time than the larger dealers and may be interested in telephone, direct mail or door-to-door solicitation for salesmen. All these methods of finding salesmen have been used with considerable success.

Telephone calls to local service clubs or direct solicitation in person by the dealer may be productive. The same solicitation can be made to other businessmen and customers with whom the dealer or salesmanager has contact. The need for an additional man or two to meet the demands of an expanding business are explained and their help is solicited in finding the right type of man. Most members of the local business community will be glad to help a man to a job, and will be pleased that they are able to help another local firm. The same solicitation of local businessmen and organizations can be made by mail. A letter explaining the need to expand the sales force and asking for help flatters the recipient and puts him in the position where he can do the dealer a favor without cost to himself.

A less used, but extremely effective form of sales recruiting is the door-to-door canvass. It requires that the dealer or salesmanager apply himself conscientiously to doorbell pushing, and the results are likely to be as positive in finding salesmen as in finding retail prospects. When the door opens the dealer steps back, removes his hat and says:

"Good morning Mrs. Jones. I am Bill Smith of the Modern Oil Heat Company, but I am not selling oilburners this morning. I am looking for an honest, ambitious man who wants to work. We need another sales engineer and would like to find one who lives in this part of town. If you happen to know a man that fits those qualifications, I'd like to talk the situation over with him."

Most housewives will be anxious to talk if she feels she can do someone a good turn. And most of the neighbors will know if someone close by, a relative or a friend of a friend is looking for work.

Interviewing a prospect uncovered in door-to-door canvass has its advantages. First, the interview probably will be conducted in the prospective salesman's home, and more important, probably in the presence of his wife or family. If the prospective salesman's wife can be sold on the opportunity, and the soundness of the business, the dealer has taken a long step toward getting a new salesman. The interview in the home is the same interview given in the office to those who answer newspaper advertis-

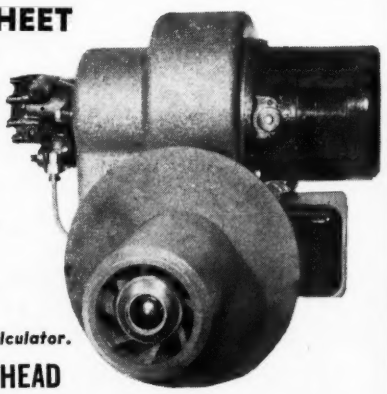

HERE'S WHY KLEMM FILTERS SELL FASTER!

Model 430G

**because they are equipped with Chemistone the original Controlled Porosity Element** . . . and only Klemm Filters offer "visible filtering." Your customers see the results—the dirt, sediment and other foreign matter trapped by a Klemm Filter. That's why Klemm units are so easy to sell and service. Results are positive! All your customers need this fuel protection. Make it a rule to suggest a Klemm Fuel Oil Filter on every call. YOU PROFIT ON EACH SALE . . . YOUR CUSTOMERS GET GREATER HEATING COMFORT.

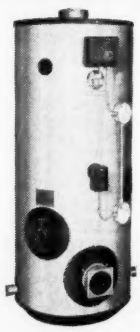
Klemm
AUTOMOTIVE PRODUCTS COMPANY
1718 Damen Avenue Chicago 47, Illinois
Export Division: Guiterman Co., Inc., 35 S. Williams Street, New York 4, N. Y.

PARK BETTER HEET
Savings as high as 20% without smoke. Co2 up to 14% Underwriters' Lab. MP1454 CS75 Commercial Standard, Mass. No. 1090. Model DPS from ¾ to 6 gph.



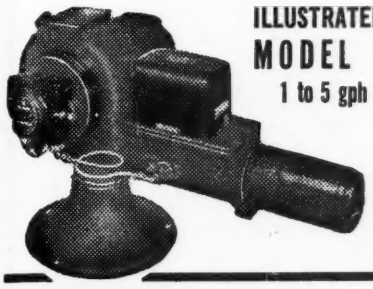
*Send for FREE Fire Box Calculator.*
SHELL DESIGNED HEAD
Park Oil Burner Mfg., Atlantic City, N. J.

A LOW COST OIL WATER HEATER



FOR PRESSURE BURNERS.
The demand is for heaters equipped with gun type burners. Satisfy this demand by selling this ready made market. Here is a low cost 30 gallon heater small enough for homes and duplex apartments. Use any oil burner. Connect to same oil tank as heating plant.
SELL HOT WATER
BOCK CORP., MADISON, WISCONSIN

# One of the *OLDEST BURNERS* ...one of the *FINEST!*



ILLUSTRATED
MODEL L
1 to 5 gph

U. S. oil burners offer much more in performance and fuel economy—for much less in proportionate cost.
One of the oldest manufacturers of oil burners, if not *the* oldest, U. S. has kept abreast or ahead of the times in burner design and mechanical engineering.
3 models are available, 1 to 5 gph, 4 to 8 gph and 7 to 16 gph . . . a range to cover almost any heating specification.

***Write, wire or phone for detailed information.***

**UNITED STATES BURNER CORP., HARTFORD, CONN.**


ing, or come from other sources.

The recruiting problem boils down to two fundamental jobs: Attracting desirable men and selling them on the opportunities in the job. Both these recruiting functions are carried on in successful organizations simultaneously and constantly. It is seldom indeed that an organization has more good salesmen than it can use.

◈

## *Readers' Forum*

A. B. CUNNINGHAM & SON
Baltimore, Md.

*Editor:*

You have struck a point of considerable interest to this writer in the second column of "Editorial Leaks" in the March issue of FUELOIL & OIL HEAT, dealing with poor heating installations put in new houses by builders.

If this oil burner industry has a bad reputation with the public it is largely due to builders and contractors installing the cheapest, most uneconomical, and most poorly installed jobs that they can possibly buy. In fact, some of these builders apparently lean over backwards to ascertain for sure that they do gyp their customers as much as possible on their heating plant. If they put the unit in right and take time enough to hook it up to the chimney so it won't burn the house down, the unit is usually too small. If they do get a pretty good unit of the right size they always somehow, manage to install it in such a way that it couldn't possibly work.

This is the most shameful thing that has ever occurred in any industry, but your solution to it isn't much of an answer. You cannot educate the people who buy these houses to get down and carefully scrutinize the heating plant. In the first place they don't have the knowledge to do it and in the second place, they don't have the will to do it. They assume that the heating plant is all right, which is logical enough, and let it go at that. Neither is it apparently possible to prevent distributors and manufacturers from selling direct to these builders without experienced dealers or service men to install and service the units and take the responsibility of them.

There is, however, a way to do it—if FHA and other mortgage concerns would make the builders put up bond on the heating plant to guarantee that it was O.K. from which they would not be released until one heating season had passed, I expect that they would be a little more careful to do a decent job.

W. E. CUNNINGHAM

GENERAL OIL BURNER SERVICE
Madison, Wis.

*Editor:*

After reading many articles by your man, J. W. Schulz, I have come to the conclusion he really knows what makes oilburners run.

Please convey my appreciation to him for his work.

ROY B. HERRLING

◈

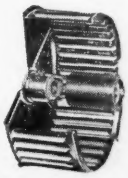
W. C. *Osha* has been named superintendent of the Dover fabricating plant, L. O. Koven & Bro., Inc., Jersey City, N. J. Mr. Osha formerly was general supervisor of welding, American Car & Foundry Co.


*Standard in the Oil Heating Industry*

**LOVEJOY**
**L-R**
**FLEXIBLE COUPLINGS**

**Always reliable. Fool-proof. Trouble-free. For Pumps, Fans, Blowers, Power Transmissions from motor to equipment.**

***Ask for details and prices.***

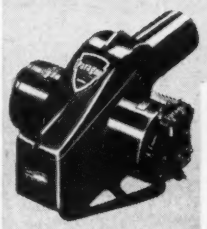


**LOVEJOY**
**FLEXIBLE COUPLING CO.**
Mfr. of Lovejoy Variable Speed Transmission Equipment and Dix Universal Joints.
5012 W. Lake St.
Chicago 44, Ill.

Save money.
Use fans equipped with L-R Jaws.

ONLY THE **Paragon Oil Burner**
HOME BETTER

HAS THE NEW ***Paratrol***
**COMBUSTION HEAD**



**Paragon Oil Burner Corp.**
75 Bridgewater Street, Brooklyn 22, N. Y.
Gentlemen:
Please rush me your dealer proposition today.
*Name* _____
*Address* _____

Sundstrand OIL BURNERS

WRITE US FOR COMPLETE INFORMATION

THE "CUSTOM-BUILT" LINE FOR FORTY-NINE

FLANGE OR FOOT MOUNTED • FIRE TESTED • PRECISION MADE

SUNDSTRAND ENGINEERING CO.
ROCKFORD, ILLINOIS

EQUALIZE ANY STEAM HEATING SYSTEM
FOR AUTOMATIC HEATING

For Fast Venting

Any steam heating system can easily be changed to a GORTON VAPOR EQUALIZING SYSTEM at low cost. No pipe changes required. Makes ALL radiators heat up quickly on 4 to 8 OUNCES instead of 2 to 5 POUNDS.

*Send for Literature and Prices of the Gorton Vapor Equalizing Equipment*

GORTON HEATING CORP.
Since 1887—Manufacturers of Heating Equipment
CRANFORD, NEW JERSEY

## *Service for Others*

(*Continued from page 69*)

a fairly heavy layer of snow before he turns on the heat, he finds that all he has accomplished is to create a lot of miniature tunnels of about two-inch diameter over the buried pipes. Under some conditions this factor would make some melting systems relatively impractical because there would be no one to start them for a snowfall during the night. This is not a problem of Breed's because the night servicemen and dispatchers are frequently talking on the radio-telephones.

The coils of the snow melting system carry 40% Prestone. The liquid is moved through the coils by two circulators in the boiler room, with the water starting out at 145 degrees and returning at approximately 110 degrees. The heating of the water is done in a huge tankless heater installed inside of the regular building boiler. Thus, the supply is available at any time and without wasting fuel when not needed. The company has also done four jobs of snow melting installations for residences in Boston suburbs.

In general, a residential snow job requires about as much water heating capacity as would be needed for heating the building itself. In other words, the boiler installation has to be about doubled.

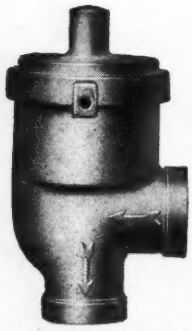
Other oddities in the company's work include the installation of several jobs of electric heating in gutters to prevent the formation of hazardous icicles, and also in some homes to prevent the water in the gutters backing up into the house and spoiling decorations.

By way of sales promotion and general public relations activity, Breed publishes a small monthly house organ. This has a circulation of 26,000, of which 10,000 are not customers at present. This house organ is a four-page leaflet attractively printed, and carries three-color artwork. In general the text is a friendly person-to-person style of discussion on burner service problems, oil-heating virtues, biographic sketches of employees, and perhaps a few jokes. The total cost of the 26,000 monthly mailings last year was a little over $18,000, or about seventy cents for each recipient.

Breed has found this to be effective sales promotion, measured by the large amount of comment and correspondence that the publication generates. Some of the letters praise it; others cuss out some particular feature.

In his basic burner service philosophy Breed has concluded that a big part of the job is servicing the customer as well as the burner. In other words, customers frequently make unreasonable requests, but these are taken in stride.

For example, about ten percent of customers are afraid to start their own burners in the fall and insist that Breed send a man to do it. This is not only unnecessary, but in more than half of the instances, the customer knows that a man was there during the summer to clean and tune up the equipment, so it must be in good shape. In such instances all the service man has to do is look wise and flip a switch or turn up a thermostat, but even with contract customers, where the call brings no revenue, it is never refused. Thus, there are nearly 3,000



PREFERRED
Anti-Syphon Valves
APPROVED BY
UNDERWRITERS' LABORATORIES, INC.

For Oils Up To No. 5—Valves C5 and C10 are available in ⅜" and ½" sizes.
For Oils Up To and Including No. 5—Valves B5 and B10 are available in ¾" and 1" sizes. (1" size is built up from ¾" size with fittings.)

Permits pumping of oil but closes to prevent syphoning in case of suction line break.

PR-173

PREFERRED UTILITIES MFG. CORP.
1860 BROADWAY, NEW YORK 23, N. Y.

For More Profitable Jobs
NU-TROJAN
Combustion Chambers
A Product of McLeod & Henry Co., Inc.

Nu-Trojan Chambers have the features that lower installation costs and reduce servicing costs to help you secure profitable jobs. Has few parts, does not need steel bands to hold them in place. First quality "Steel Mixture" Pennsylvania fire clay. Fusing point 3180° F. Write Dept. 61 for details.

A. R. WEBBER CO., INC.
DEPT. 61
NEW HAVEN 1?, CONN.

EVERYTHING FOR THE OIL BURNER TRADE

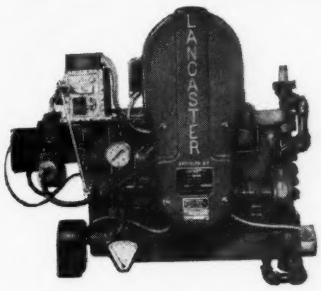
**LANCASTER**

**INDUSTRIAL and COMMERCIAL**
**HORIZONTAL ROTARY OIL BURNERS**
Burn No. 5 & No. 6 Fuel Oils. 10 to 650 Boiler h.p.
BELT & DIRECT DRIVEN

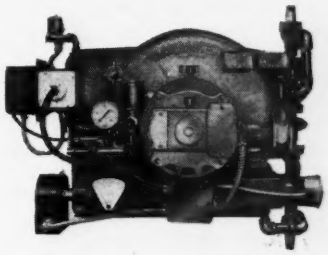
- NO SPECIAL MOTORS
- NO HOLLOW SHAFTS
- NO PACKING ON SHAFTS
- EASY TO INSTALL
- EASY TO SERVICE

Approved by National Board of Fire Underwriters
*Manufactured by*
**Lancaster Heat Transfer Co., Inc.**
**123 De Kalb Avenue, Brooklyn 1, N. Y.**
Exclusive Dealerships Available

Manual, Semi-Automatic and Fully Automatic



Fully Automatic No. 6 Oil Modulated Belt Drive


Fully Automatic No. 6 Oil Direct Drive

unnecessary calls handled in the early fall, but Breed finds it good consumer relations and a help in getting almost a hundred percent renewals from year to year.

In pointing out to Breed that his business appeared to be making a contribution to the good of oilheating in Boston and might be extended to other cities, he came back rather definitely with the conclusion that he had his hands more than full in the Boston market, that he enjoyed his associations there, and that he would leave the rest of the world for somebody else.

◈

*Norman E. Olds* retired on May 15, the twenty-fifth anniversary of his appointment as advertising manager, Perfection Stove Co., Cleveland 4, Ohio. For five years previous he had been sales manager of Perfection's Canadian branch so that Mr. Olds actually is a 30-year veteran. He is a former vice president and director of the Association of National Advertisers and holds memberships in numerous other groups and clubs. During his tenure as advertising manager, Mr. Olds placed approximately $13,000,000 worth of advertising for Perfection. As yet no one has been named to succeed him. For his leisure time Mr. Olds is looking forward to more hours in his basement workshop, a few more holes of golf each week and some traveling.

*William W. Rice* has been appointed manager, Special Products Dept., Deep Rock Oil Corp., with headquarters in Chicago. He formerly was manager, Products Supply and Distribution Dept., to which position he has been succeeded by *Ralph J. Gaden*. Other Deep Rock appointments saw *James P. Ford* named area manager of the northwest sales area, to work out of Minneapolis and be responsible for sales activities in Minnesota, North and South Dakota and *C. W. Dyniewicz* made responsible for sales promotion and advertising programs as manager, Merchandising Dept.

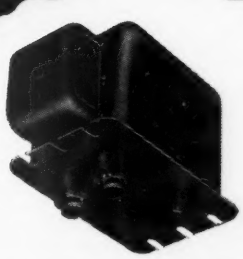
*Alex K. Tinker*, named manager of the New York branch sales office, National Radiator Co., Johnstown, Pa.,

Hudson Tinker

has been succeeded by *Fred S. Hudson* as Pittsburgh branch manager. Mr. Tinker joined National in 1928 as a special sales representative at the former Buffalo branch and has served as Pittsburgh manager since 1931. Mr. Hudson has been a sales engineer in the Richmond and Washington branch offices since 1936, except for his service with the Army Corps of Engineers from 1942 to 1946.

*Verne A. Bellman* has been named vice president in charge of marketing and a director, General Petroleum Corp., Los Angeles, Calif.

BALANCED DESIGN FOR *Trouble Free* PERFORMANCE



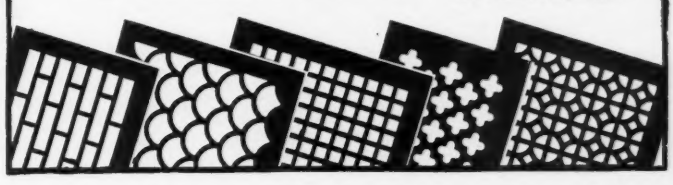
QUALITY HIGH
COST LOW
IMMEDIATE DELIVERY
U. L. APPROVED
SHIELDED TO PREVENT RADIO AND TELEVISION INTERFERENCE

M.T.C. **MIDWEST TRANSFORMER CO.**
3674 E. ADAMS STREET • CUDAHY, WISCONSIN

*Auer* **GRILLES**

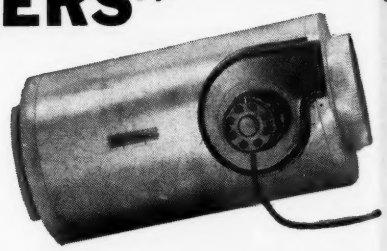
Stamped metal grilles in many designs, sizes to order for all purposes—air conditioning, ventilating, radiator enclosure, or concealment. In steel (or stainless), aluminum, brass, or bronze. Finished in prime, or special finishes or platings. Catalog "G" shows all designs, with dimensions, opening sizes, full scale details. Sent on request.

**THE AUER REGISTER COMPANY** *3608 Payne Ave., Cleveland 14, Ohio*



# RAYFIELD "HEAT RECLAIMERS"

1. Low in price—fully automatic—easy installation.
2. Install on Boilers, Furnaces or Heating Stoves.
3. For use with ANY fuel—Coal, Gas, Oil or Wood.
4. Increases output of any Gravity Warm Air Furnace.
5. Heat Basements, Play Rooms, Attached Garages, etc.
6. The hotter the stack—the more heat reclaimed.
7. Positively saves wasted heat going up the chimney.



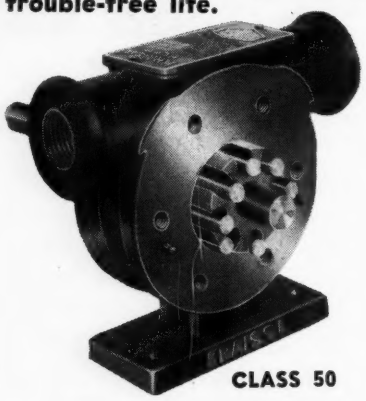
***WRITE TODAY FOR DETAILS, PRICES AND DISCOUNTS***

**C. L. RAYFIELD COMPANY** 2010 SO. HALSTED ST., CHICAGO 8, ILL.



# KRAISSL FUEL OIL PUMPS

**Compact, lightweight pumps that operate at wide ranges of speed—to handle oils of all viscosities and give long trouble-free life.**

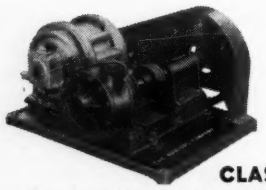


CLASS 50

**Direct-drive PUMPS *for Light Oils***

**Roller tolerances permit handling extraneous matter that would jam other mechanisms. Good suction characteristics. Capacities 60-600 GPH; pressures to 100 psi.**

***Ask for Bulletin A-1330***



CLASS 60

**Reduction-drive PUMPS *for Heavy Oils***

**Time-tested Kraissl design for direct burner supply—or as booster pump. The pump that will pull heavy oil when it is cold. Capacities, 75-1800 GPH; pressures to 100 psi.**

***Ask for Bulletin A-1193***

**295 WILLIAMS AVENUE**

KRAISSL **THE KRAISSL COMPANY, Inc.**
HACKENSACK, N. J.


## DEGREE DAY TABLES

| ONE MONTH ONLY — March Normal | March 1948 | March 1949 | Percent Change* | | SEASON TO DATE (Sept. 1 to Mar. 31) Normal | 1948 | 1949 | Percent Change* |
|---|---|---|---|---|---|---|---|---|
| 955 | 1029 | 853 | — 10.7 | Albany | 5817 | 6565 | 4940 | — 15.1 |
| 389 | 307 | 386 | — 0.8 | Atlanta | 2794 | 2760 | 2381 | — 14.8 |
| 650 | 562 | 578 | — 11.1 | Baltimore | 4063 | 4081 | 3279 | — 19.3 |
| 852 | 837 | 799 | — 6.2 | Boston | 5067 | 5338 | 4364 | — 13.8 |
| 1010 | 940 | 961 | — 4.8 | Buffalo | 5782 | 5828 | 5055 | — 12.6 |
| 871 | 857 | 817 | — 6.2 | Chicago | 5410 | 5586 | 4952 | — 8.3 |
| 681 | 556 | 596 | — 12.5 | Cincinnati | 4487 | 4257 | 3589 | — 20.0 |
| 892 | 806 | 823 | — 7.7 | Cleveland | 5281 | 5132 | 4502 | — 14.8 |
| 284 | 380 | 268 | — 5.6 | Dallas | 2269 | 2657 | 2345 | + 3.3 |
| 792 | 968 | 765 | — 3.4 | Denver | 4990 | 4976 | 5366 | + 7.5 |
| 849 | 999 | 892 | + 5.1 | Des Moines | 5742 | 5889 | 5792 | + 0.9 |
| 943 | 932 | 909 | — 3.6 | Detroit | 5681 | 5798 | 5054 | — 11.0 |
| 962 | 940 | 974 | + 1.2 | Grand Rapids | 5817 | 5747 | 5235 | — 10.0 |
| 871 | 890 | 825 | — 5.3 | Hartford | 5296 | 5809 | 4755 | — 10.2 |
| 982 | 1203 | 1124 | + 14.4 | Helena | 6548 | 6808 | 7993 | + 22.1 |
| 154 | 191 | 188 | + 22.0 | Houston | 1283 | 1549 | 1285 | + 0.1 |
| 751 | 683 | 695 | — 7.5 | Indianapolis | 4890 | 4931 | 4312 | — 11.8 |
| 657 | 788 | 684 | + 4.1 | Kansas City | 4538 | 4734 | 4532 | — 0.1 |
| 209 | 302 | 279 | + 33.5 | Los Angeles | 1100 | 1236 | 1699 | + 54.4 |
| 595 | 512 | 590 | — 0.9 | Louisville | 4027 | 4072 | 3429 | — 14.8 |
| 969 | 1015 | 982 | + 1.3 | Milwaukee | 5994 | 6180 | 5661 | — 5.6 |
| 1082 | 1194 | 1136 | + 5.0 | Minneapolis | 7063 | 7361 | 6953 | — 1.6 |
| 130 | 110 | 143 | + 10.0 | New Orleans | 1175 | 1594 | 838 | — 28.7 |
| 785 | 714 | 892 | + 13.6 | New York | 4627 | 4709 | 3935 | — 14.9 |
| 813 | 1023 | 882 | + 8.5 | Omaha | 5508 | 5831 | 5853 | + 6.3 |
| 685 | 638 | 637 | — 7.0 | Philadelphia | 4227 | 4409 | 3537 | — 17.0 |
| 767 | 659 | 711 | — 7.3 | Pittsburgh | 4809 | 4952 | 3965 | — 17.5 |
| 1003 | 973 | 986 | — 1.6 | Portland, Me. | 6085 | 5292 | 5433 | — 10.7 |
| 530 | 585 | 526 | — 0.7 | Portland, Ore. | 3603 | 3489 | 4070 | + 12.9 |
| 866 | 793 | 765 | — 11.7 | Providence | 5158 | 5679 | 4216 | — 18.3 |
| 616 | 688 | 616 | .. | St. Louis | 4209 | 4483 | 3966 | — 5.8 |
| 709 | 878 | 657 | — 7.3 | Salt Lake City | 4885 | 5127 | 5601 | + 15.4 |
| 314 | 412 | 366 | + 16.6 | San Francisco | 2048 | 2230 | 2566 | + 25.3 |
| 1303 | 1336 | 1302 | — 0.1 | Sault Ste. Marie | 7587 | 7623 | 6993 | — 7.8 |
| 595 | 628 | 543 | — 8.7 | Seattle | 3816 | 3855 | 4202 | + 10.1 |
| 889 | 900 | 862 | — 3.0 | Toledo | 5442 | 5786 | 4897 | — 10.0 |
| 637 | 522 | 565 | — 11.3 | Washington | 4133 | 4016 | 3272 | — 20.8 |

*Compared with normal.

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